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# An Address
ON
# REFLECTIONS OF AN ANÆSTHETIST*

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MAY I be allowed first of all to express the very great pleasure which we members of the Canadian Society of Anæsthetists feel in having this opportunity to hold a joint meeting with the members of the Eastern Society. Nothing but good for ourselves and our specialty can come of such gatherings, and I earnestly hope that they will become a regular institution. No more appropriate place than this interesting old city could have been chosen for a meeting like this: firstly, because of its associations with the history of anæsthesia, and secondly because it was here that your forefathers and ours laid the best of all foundations of a lasting friendship by the time-honoured process of having a good stand-up fight.

I have chosen for the subject of my address some of the thoughts which have of late become more or less regular visitors to what I call my mind. There are other thoughts, illicit visitors, that come to me in moments of exasperation and depression. About these, from motives of prudence, I shall say nothing. If the day ever comes when I shall be able to retire, I should like to publish them in the form of a valedictory to the medical profession. That will be my swan song.

Now, in the first place, what do I really think about our specialty? If I had my life to live over again would I be an anæsthetist? My answer is unhesitatingly "Yes". I know that there are certain disadvantages which are not found in other specialties, but in my opinion they are far outweighed by one great advantage. Because nearly all surgical operations are performed in the morning or early afternoon we have a certain amount of that inestimable boon, leisure. We can keep ourselves familiar with everything that is worth reading in our specialty, and yet have time at our disposal for something else than the business of earning our daily bread. It requires all my little stock of moral courage, in such a strenuous age, to speak of leisure in this way. I may confess here that I am in no way impressed by the strenuous man who works ten or twelve hours a day. I have come to believe that when a working day lasts longer than eight hours, the quality of the work for the whole day suffers. So I feel rather sorry for my strenuous friend. He may work early and late because he has erected the doctrine of "hustle" into a fetish; or he may be a successful doctor overdriven by his patients. Whatever the reason, he puts an excessive amount of time and energy into doing work which is not his best. Let him be careful not to take the cab-horse for his model lest, he also find himself with a drooping head and a range of vision limited to the road at his feet. In the course of time my strenuous friend will, no doubt, reap his reward and achieve the objects of his am-

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bitions, but it will be at the risk of finding that the fight has left him too battered in soul and body to enjoy them. To such as he the prophet spoke, and spoke in vain, when he said, "The wisdom of the scribe cometh by opportunity of leisure." I do not mean to imply that one necessarily becomes wise because one has leisure. Modern civilization provides only too many ways of passing time without benefit to our souls, our minds, or our bodies. Well for him who has a hobby, and best of all, one that entails some exercise of the mind, for intellectually it is impossible to stand still. We must go forward or backward.

Another advantage of our specialty is this, that when we leave our patients we leave our responsibility for them behind us. Not that our interest in them, either as patients or as human beings, need cease then. The time, short as it is, or should be, between the patient's arrival in the anæsthetic room and our putting him to sleep, is often an excellent introduction to an acquaintanceship which may ripen into friendship. He who has watched thousands of patients during this time cannot but have a feeling of admiration for the fortitude of human nature. What an ordeal it is for most of them, and how rarely does any one, grown up at least, show the white feather! In my own experience, the few who have refused to be operated upon, from fear, have been, almost without exception, men. There is, of course, the woman who turns her head away from the anæsthetic mask of face-piece, or puts up her hands to keep it off, but she only wishes to be coaxed. The quickest way to deal with her is to tell her that she is there of her own accord; that she is not obliged to have the operation if she does not want it. I have never known this expedient to fail.

Our admiration for human nature is somewhat qualified when we see women arrive in the anæsthetic room wearing wigs, or with their hair dyed, strange and pitiful evidence of vanity in those, who, in their efforts to deceive others, deceive only themselves. The rouging of lips and cheeks, however, is less easy to condone, for this, if artistically done, may add to our difficulties by disguising one of the most useful signs by which we estimate our patient's condition. With regard to children, I have come to believe that I can tell the character of a mother by the way her child behaves in the anæsthetic room. When I am told that the patient is a "very nervous, high-strung child," I suspect that the mother is a fool. The child of a wise mother accepts the inevitable with the composure which comes of discipline.

I cannot help thinking sometimes that we might make the ordeal of an operation a little less trying to our patients than we do. The ideal arrangement for an operating-room suite would be to have a separate corridor leading to the anæsthetic room, so that the patient could not see his fellow sufferers on their way back to their rooms, bandaged, with air-ways in their mouths, perhaps retching, and perhaps with blood upon their faces. If they were prevented from getting a glimpse of nurses bustling about, or of a surgeon with a bloody gown washing his hands, they would be not a whit the worse. I would have the doors of the anæsthetic room sound-proof so that the noise of basins dropping on marble floors, or of the banging of lids of metal drums, would not reach the patient's ears just at the moment when the first few breaths of the anæsthetic have made his hearing painfully acute.

I am not, I know, suggesting anything new. I shall be told that these considerations have occurred to us all, and that the need for economy in space and money prevent such ideal arrangements. I reply that I am not convinced. Architects are still building fine new hospitals with anæsthetic rooms so small that they cannot be used. If it is possible to find money to waste in this way, surely it is possible to find a little more and invest it so as to bring a return in increased comfort for the patient. Curiously enough, anæsthetists are rarely, if ever, consulted in this matter. The surgeon is consulted, but he knows less than anyone else because he is there for only the briefest moments. When he is shown the plans of the new operating rooms for his hospital, and is told that they are based on those of St. Basilisk's Hospital, where the famous Slasher clinic is, he is satisfied. He says he knows Freddy Slasher intimately, has been at his clinic, and has never heard him complain about his anæsthetic rooms. Thus mistakes are passed on from one modern hospital to another.

My ideal anæsthetic room would not look like a room in a hospital. There would be two or three pictures on the walls, and muslin curtains,

preferably not white ones, at the windows. A carpet, of course, there could not be. White enamelled furniture would be absent, and anæsthetic apparatus as inconspicuous as possible. I know that a little extra work would fall upon the ward maid or orderly, and that visiting doctors would look surprised, and even shocked, but I believe that these drawbacks would be compensated for by the improved morale of the patients. I know, too, that these aspirations of mine are vain. I realize that in this efficient age, we are, in these matters, bound hand and foot by convention. Hospital rooms must look like hospital rooms. There is no point in being efficient if you do not look efficient. And how repellently efficient the inside of a modern hospital looks to a patient!

There is another way in which we might make things easier for our patients. We might shorten the time during which they are under the influence of the anæsthetic. We are all agreed that there is much unnecessary loss of time between the commencement of the anæsthetic and of the operation. From the anæsthetist's point of view, surgeons may be divided into two classes. In the first are those who are afraid of the effects of the anæsthetic on their patients. This is a small class, made up chiefly of young, clever and ambitious surgeons who are not willing to lose a point, however small, in their patients' favour. In the second are those whose confidence in their anæsthetist is so unbounded that they think it does not matter how long the patient is kept under the influence of the anæsthetic. They are commonly seen washing up in a leisurely way after the patient has been ready in the operating room for some time. The members of this class are almost without exception, men who have "arrived."

Nor is it only before the operation begins that time is wasted. The advantages of speed in operating have been rather overlooked. It is astonishing how well the body can stand the trauma of a surgical operation if it be inflicted quickly. Quickness in operating depends chiefly upon manual dexterity. The quick operator is, like the poet, "born, not made." He has been endowed at his birth with clever hands. The awkward man must educate his hands. He may become a good operator: but he will never become a quick one. Two of the greatest surgeons of the past, John Hunter and Lord Lister, belonged to this latter category. One of the rarest combinations is that of a first-class brain with first-class hands. There are many surgeons who have first-class hands, and excellent minds, who fall short of greatness because they have not sound judgment. Their lack of balance leads them into adopting fads, and if they have a gift for publicity and organization, and are not handicapped by too much modesty, they become famous. The first-class mind is, unfortunately, too often associated with second-class, or even third-class hands. There is another point to which I should like to draw your attention before I leave this subject. I think we shall find that clever hands are rarely well-shaped from an æsthetic point of view, and *vice versa*, that well-shaped hands are nearly always clumsy.

The rarity of great surgeons is no cause for wonder. It is a good deal to expect of a mere human being that he should have, not only the highest endowments of mind and hand, but the right sort of personality, and the sound physical health which is essential in the most exacting of professions. Not often in one frail body do you find

> "The reason firm, the temperate will,
> Endurance, foresight, strength and skill."

One of the signs which distinguish the great surgeon in the operating room from his colleagues of smaller calibre is this—he knows when he has done enough, and stops. He has either less faith in himself than they have, or more faith in nature. I sometimes wonder if surgery is not passing through a phase which is characterized by a lack of confidence in nature's power to heal. Is it necessary, for instance, to sew up the skin with such meticulous precision that there is not more than an eighth of an inch between each suture? Will not a cavity left in the mouth after an operation, heal properly unless packed with iodoform gauze? I have never experienced the taste and smell of iodoform and ether, combined with nausea and the discomfort which follows trauma in the mouth, all at the same time, but if I ever do, I think I shall spit out the iodoform gauze and take my chance with nature. I make no excuse for holding these and other unorthodox opinions, because I have learned by dipping into books on the history of medicine that the progress of surgery has been

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largely a process of discarding wrong old practices in favour of wrong new ones.

I have recently been reading the highly entertaining preface to Bernard Shaw's "Doctor's Dilemma," and learning what villains we doctors are. "The medical profession," he says, "has not a high character; it has an infamous character." And again, "It is simply unscientific to allege or believe that doctors do not, under existing circumstances, perform unnecessary operations." Now, it is of course true that there are rascals in our profession, as there are in all other walks of life, and that there is a certain number of operations done from a mixture of unworthy motives, chief among which are the need of money, and the wish for practice or advertisement. But in large hospitals there is a powerful deterrent about which Bernard Shaw was ignorant, and that is the watchful eyes which are focussed on the surgeon when he is in the operating room. If he makes a mistake it is known in a few minutes all over the hospital. If there is a suspicion that he has operated without good reason every one knows, and no one gives him the benefit of the doubt. The light which shines upon his reputation is fiercely bright. The best antiseptic of the operating room is the criticism of colleagues, the wholesome influence of which is reinforced by the fear of public opinion as crystallized in the minds of remote beings known as "governors."

Bernard Shaw in the preface from which I have quoted asks the question "Are doctors scientific?" In unequivocal language he answers his own question in the negative. "As a matter of fact," he says, "the rank and file of doctors are no more scientific than their tailors." Whether I think Shaw right or wrong depends on what meaning we attach to the word "science." If we mean by "men of science" men who are intellectually honest, who want to find out the truth and to publish it stripped of all the obscurity which tradition, imagination, prejudice and self-interest throw over it, then I think we must be careful how we pride ourselves on being scientific. It is because we do not vitally care whether we have truth itself served up to us, or error dressed up to look more or less like truth, that medical literature in journals and books has attained its present monstrous proportions. In spite of our training in science ours is the most credulous of professions.

A year or two ago I read in a leading French medical journal an address given by one of the most famous surgeons in Europe upon the subject of general anæsthesia by the spinal injection of stovaine. For twenty years he had used this method of anæsthesia to the exclusion of all others, in every kind of operation in general surgery "sans accident, sans mortalité." Now, having had a fairly wide experience of general and spinal anæsthesia, I confess I was a little incredulous. Could anyone, I asked myself, carry on a large surgical practice for twenty years, and never have an "accident" or a death on the table? If he had had such a death or an accident could he be quite sure, in view of the fact that he was using the spinal injection of stovaine for general anæsthesia, that the anæsthetic played no part in it? It was a good deal to ask one to believe. But what sort of anæsthesia did he get? On this point I received enlightenment from a friend who had seen the great man operate upon a patient with cancer of the breast. "The patient," he said, "suffered a great deal of pain during the operation."

Here is another example of the truth which is not the whole truth. A distinguished surgeon and teacher of surgery some years ago operated within the space of a month or two upon four patients, who by reason of intemperate habits, obesity, and disease of the lungs were considered unsuitable for general anæsthesia. Three of them were given a spinal anæsthetic and made excellent recoveries. An attempt was made to give the fourth a spinal injection, but resulted in failure owing to the impossibility of introducing the needle into the subdural space. He was then given ether and made as good a recovery as any of the other three. Now the surgeon reported the first three cases and said nothing about the fourth, although his paper was written to show the place of spinal anæsthesia in certain operations where general anæsthesia is contraindicated.

Had Bernard Shaw thought of turning to medical writings for evidence to support his statement that we are no more scientific than our tailors I am afraid he would not have had to search far. He would have found it in the slip-shod use of language which has unfortun-

ately become so common, and which can arise from no other cause than slovenly ways of thinking. As an example of what I mean I shall quote the following sentence which is taken from an article written by a member of the surgical staff of one of the great clinics of North America: "The consideration of operation in the presence of the degenerative cardiac diseases must be individualized and based entirely on the prognosis of the particular type of disease as ascertained by clinical and electrocardiographic studies, considered in conjunction with the urgency of the operation and the effect on the cardio-vascular system of removal of the surgical burden." Now, what I ask, is all this about? The use of the word "individualized" I find especially confusing. I looked up the word in the dictionary, and found that it means, "to give individual character to; to specify," and I wondered how one can individualize a consideration.

Another example comes, I regret to say, from a paper written by an anæsthetist: "Respiration during induction," he writes, "may terminate in apnœa even though they (the patients) are still too light to initiate surgical procedure." Passing over the colloquial sense in which the word "light" is used, we have here a statement from which we are justified in inferring that when the patients are more deeply under the influence of ether they will begin to operate upon themselves.

I have never heard any plausible explanation of the confusion of tongues which put a stop to the building of the Tower of Babel. My own theory is that everyone employed upon that work adopted the position of Humpty Dumpty in "Through the Looking-Glass." "When I use a word," said that bold philologist, "it means just what I choose it to mean, neither more nor less."

In this same spirit we have dealt with the word "pathology." Originally it meant, if we may judge by its derivation, "a discourse on disease." It is now also a synonym for "disease." A patient with bronchitis has "lung pathology." To realize fully how confusing is this sort of innovation we have only to subject other words ending in "ology" to the same treatment. Theology becomes a synonym for God, and the Revised Prayer Book of the future will contain a creed commencing with "I believe in theology." An atheist will be one who "does not believe in theology." "Phrenology" will come to mean "mind," and a madman will be one who has "gone out of his phrenology." If by the time he recovers, the word "physiology" has acquired the meaning of "health," he will be said to have recovered his "phrenological physiology." Shall we be justified in feeling sorry for him if he relapses?

It is no excuse for writing carelessly to plead that one has not time to do better. Readers do not hear the excuse. What is badly expressed they find difficult to understand, and will not bother to read. "If your language is jargon," says a great modern teacher, "your intellect, if not your whole character, will almost certainly correspond. Where your mind should go straight, it will dodge; the difficulties it should approach with a fair front, and grip with a firm hand, it will be seeking to evade or circumvent. For the Style is the Man, and where a man's treasure is, there his heart, and his brain, and his writing, will be also."

There are several other subjects about which I should like to speak, but I refrain out of consideration for the feelings of the gentlemen who have arranged the program of this meeting. I know that to them long-windedness is the unpardonable sin. I hope I have not offended too deeply.

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**A Medical Family.**—In August, 1828, Matthew Baillie Gairdner became a licentiate of the Royal College of Surgeons of Edinburgh, at the early age of 19; he graduated M.D. at the University of Edinburgh two years later, and became F.R.C.S.Ed. in 1858; he died in 1888. His eldest son, James, graduated M.B., C.M.Ed. in 1867, proceeded M.D. in 1873, and has acted as medical officer of Crieff Parish in Perthshire for more than sixty years. The professional practice of father and son has thus covered more than a century. It would be interesting to know if this record can be approached by any other medical family. Dr. James Gairdner's younger brother, Matthew William Gairdner, graduated M.B.Ed. and obtained the diploma of L.R.C.S.Ed. in 1871; he resides at Cheltenham, and his son, Alan Campbell Gairdner, is a medical graduate of Oxford and obtained the F.R.C.S. Eng. this summer.—*Brit. M. J.*, 1928, ii, 583.

# An Address
## ON
## THE FIELD OF NEUROSURGERY*

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THE differences between the American and Canadian medical profession have little to do with science and much with tradition and background. For me, to leave the one and enter the other is made easier by years of medical study in Great Britain, and because of the fact that I can claim as my teacher and friend, a great Canadian, Sir William Osler.

Such a change is apt to cause one to look questioningly at the divisions between the ever more specialized branches of our profession. New knowledge, and a multitude of new technical procedures, have made it impossible for any man to master all of the intricacies of medical science, even though he were endowed with the many-sided capacity of Leonardo Da Vinci, or John Hunter. But a fair and efficient adjustment even between medicine and surgery, has long offered difficulty. It is my desire to speak briefly of this relationship, at least in so far as it concerns the treatment of diseases of the nervous system.

Neurosurgery is perhaps the youngest of medical specialties. Operations upon the central nervous system were naturally doomed to failure until Lister had given us the secret of the control of sepsis, and Ferrier had provided the clue to localization of function in the brain; for sepsis within the meninges spells death and blind exploration may mean paralysis.

Neurologists who early saw the goal to be attained called upon surgeons who did not understand the goal and who were ignorant of the physiology of the nervous system. The results were terrible and the profession gradually concluded that the unfortunate patients might as well be allowed to die in their own way. This attitude, which can be dispelled only by demonstrated results, lingers still in many localities.

Effective neurosurgery may be said to begin with Sir Victor Horsley. He started his professional career as a surgeon but before he began his work upon the human nervous system he had made of himself a neurophysiologist, and years of experimental surgery had enabled him to develop a technique for such operations. With his use of bone wax, heat, and bits of muscle for hæmostasis, and his daring approach to all regions of the brain and spinal cord Horsley was a pioneer, and must always be considered the great figure in neurosurgery. MacEwen, of Glasgow, at about the same time demonstrated the proper treatment of abscesses of the brain, and left behind him an almost unbelievably low mortality record in the treatment of this affliction.

Following Horsley, Cushing has refined the methods of neurosurgery and has demonstrated once and for all that these operations may be done with a low mortality by a specialized team. In his clinic it was first proved that simple craniotomy could be done with little more risk than that involved in cœliotomy. Dr. Cushing's statistics have turned a new page in the surgery of tumours of the brain and hypophysis, and there are a score of his pupils scattered through America and Europe, restricting their work to this type of surgery and reproducing his results according to their several ability.

In Philadelphia the fortunately combined efforts of a neurologist, Dr. Spiller, and a neurosurgeon, Dr. Frazier, have provided us with a permanent cure for trigeminal neuralgia by differential section of the posterior root, a procedure which, in experienced hands, has practically no operative mortality. They have also given us another means of liberating patients from unbearable pain, *i.e.*, chordotomy, or section of the tracts which conduct pain in the spinal cord.

Dandy has provided us with a new method of cerebral localization, *i.e.*, roentgenography of the cranial cavity after direct ventricular re-

* Delivered before the Montreal Medico-Chirurgical Society, November 2, 1928.

placement of fluid by air or after similar spinal replacement. Thanks to this method, which should, however, be used only in doubtful cases, the diagnosis of unlocalized brain tumour is now practically never justified.

Such injections of air into the spinal canal may also be used as a specific cure for traumatic meningeal headache. There are many more advances in the field of the central nervous system and also the peripheral and sympathetic nervous system which may not be mentioned here.

Thanks to peculiar conditions in American professional and university life it has been possible for an ever increasing group of men to confine their activity to neurosurgery. The result has been a rapid expansion of this specialty. In one western city of the United States there are at present seven neurosurgeons, only one of whom is dependent upon a university budget for his income.

On the continent of Europe on the other hand, there has been no such specialization. Every general surgeon has held himself ready to do any operation upon the nervous system which may, by chance, be entrusted to him. The result has been little or no advance in surgical therapy. At the same time neurology on the continent seems to have failed to fulfill the brilliant promise of such clinicians as Marie, Déjerine and Oppenheim. The university chairs created for combined neurology and psychiatry have come gradually to be occupied by men whose interest is largely psychiatry.

In two neurological clinics, however, which are perhaps the most distinguished on the continent to-day, a new stand has been taken. Foerster, Professor of Neurology in Breslau, now carries out all of his own operations, and has become the leading and almost the only neurosurgeon in Germany. Brouwer, of Amsterdam, has induced his native city to send one of his assistants abroad for training in neurosurgery that he may return and operate within the university neurological clinic.

The future of neurology and the future of neurosurgery alike demand that these two specialties be combined in one. Herein lies salvation and guidance for both. A surgeon who operates upon the nervous system without studying both the subject of neurology in general, and the neurological problems of his patient in particular, works under too great a handicap, regardless of his manual dexterity. The prerequisite training is similar for neurology and neurosurgery, and neither can do without the other. It is true that not every neurologist is in a position to operate, and likewise the surgeon who may spend two to five hours upon his feet in each major operation finds it quite impossible to treat non-operative neurological cases. There must be a professional subdivision of the material treated.

The neuropathological, neurophysiological, and clinical interests of medicine and surgery must be identical. The common meeting ground is above all the neuropathological laboratory. Comparative segregation of neurology and neurosurgery with their own methods of research and study is the *sine qua non* of future advance.

On the other hand, it is true that too great specialization is dangerous, and neurology and neurosurgery need the steadying influence of an association with general medicine and surgery, which should be as intimate as hospital life will permit. Aside from the clinic, the closest contact which this double specialty makes with surgery is through the operating room, with medicine through the research laboratory.

The field of neurosurgery, both now and in the future, should not be confined to tumours of the nervous system and tic douloureux, as is the case in some clinics. On the contrary, it should include the prevention and the cure of traumatic epilepsy, control of cardiovascular pain and of intractable pain of all types; traumatic headaches and some types of migraine; birth hæmorrhage and the ensuing epilepsy; peripheral nerve injuries; and even some cases of pyogenic meningitis and hydrocephalus. These and other involvements of the nervous system open up a wide and much neglected field of activity.

The future promises much. New methods will surely solve many of the unsolved problems. In no other department of medicine is the need for new work more challenging, and in my opinion nowhere else is the discovery of scientific gold so certain.

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# ULCERATIVE COLITIS*

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THE subject of ulcerative colitis has received a great deal of attention in the medical literature of all countries during the past decade. In reviewing the English, German, French and American literature on this disease, one is struck by the similarity of the articles. It seems obvious that these writers from various countries are all dealing with the same condition, and not, as has been suggested, with different diseases brought under the same name—ulcerative colitis. The term is undoubtedly unsatisfactory from the etiological standpoint, but the condition has been so adequately described, both in regard to its pathology and clinical manifestations, that no confusion should exist regarding the condition it is intended to designate.

One can summarize the present state of our knowledge of the disease in this way. Ulcerative colitis is a disease which is essentially chronic, but is subject to acute or sub-acute exacerbations. The exact etiological factor is unknown, though it is almost universally agreed that it is an infectious disease of which the specific micro-organism has not been definitely isolated. The pathological lesion is typical and constant, being an erosion involving only the superficial layers of the mucosa in the earlier stages, but associated with œdema, congestion, and leucocytic infiltration of the entire bowel wall in the more advanced cases. While the whole length of the large bowel is frequently involved, the brunt of the disease is carried by the rectum and sigmoid. The clinical manifestations are diarrhœa with from six to thirty stools a day, which contain blood, pus, and mucus. A varying degree of secondary anæmia is always present. Loss of weight, in spite of a fairly good appetite, a slight temperature, leucocytosis, and cramp-like abdominal pain relieved by evacuations, are symptoms of minor diagnostic value. The sigmoidoscope is indispensable in arriving at a correct diagnosis. The x-ray assists in the diagnosis by excluding other causes of diarrhœa; it also helps to determine the extent of the disease; it shows hypermotility of the colon with absence of normal haustrations, the typical pipe-stem or ribbon-like colon. (See Fig. 1).

Finally, the treatment is not standardized, owing to the fact that we do not know the exact micro-organism with which we are contending, but in spite of this serious handicap the results from active and thorough treatment carried over a period of months in every case are on the whole quite satisfactory.

## BACTERIOLOGY

In discussing the possible etiology of this disease, mention must first be made of Bargen's work which constitutes a noteworthy contribution to the study of this malady. Future advances in our knowledge of the disease will perhaps depend entirely upon bacteriological research. Bargen has described a non-mannite-fermenting diplococcus which he considers to be the causative agent. He has been able to isolate this organism in about 75 per cent of his cases, and has noticed an improvement from vaccine therapy. At first this seemed most encouraging, but our experience during the past year has not been such as to make us feel that this was the solution of the problem. In one of my cases, I was able to obtain a fairly pure culture of this diplococcus from a superficial smear taken from the rectal ulcers and an organism morphologically similar from an abscessed tooth. This patient showed a marked improvement after extraction of the affected tooth and a repeated course of vaccine, but it is difficult to be sure which was chiefly responsible for this improvement. She has had very thorough treatment with the diplococcus vaccine, but has had relapses and is far from well. From clinical ob-

* Read before the Canadian Medical Association, Charlottetown, P.E.I., June 21, 1928.

servation and the result of bacteriological work, I have come to believe that this diplococcus is not specific for the disease, but is only one of the predominating secondary infective organisms. The bacteriological studies carried out by Paulson at the Johns Hopkins Hospital support this view.

FIG. 1.—Ulcerative colitis—typical pipestem colon.

I have been making careful bacteriological studies of our cases for more than two years, but it occurred to me only about six months ago that there was an obvious explanation for the different results obtained from other places. Bargen and others have used sterile cotton swabs to obtain their specimens, whereas I have been using a sharp cutting curette with a very small spoon and a long handle. In this way I obtain a small section of the base of the ulcer and not merely a surface smear. Text-books on tropical medicine tell us that the dysentery bacilli will often disappear from the stool within ten days after the onset of the disease, but that the organism can be obtained later from sections of the bowel wall. It has occurred to me that this is the reason why Dr. F. Cadham has been able to isolate the dysentery bacillus from our scrapings. He has reported *Bacillus dysenteriæ* present in four of the last five cases investigated. Three cases belonged to the Flexner group, whereas the fourth was of the Shiga type.

One of my cases who had the diplococcus vaccine at different intervals for more than a year, without improvement, was later treated by cæcostomy with routine irrigations and by serum therapy. The serum was prepared by Dr. F. Cadham of the Manitoba University and produced the most gratifying results. From being markedly anæmic the patient's blood count has become normal, and his bowel movements have been reduced from twelve to sixteen to one or two evacuations a day.

### PREDISPOSING FACTORS

Very little importance can be placed on so-called predisposing factors. It must be admitted that many persons are exposed to this infection who do not develop ulcerative colitis. Others again contract the disease and make a complete recovery without special treatment. When we speak about a patient's constitutional predisposition or his resistance to infection these are only phrases the exact meaning of which is not known.

### DIAGNOSIS

Other causes of diarrhœas, such as tuberculosis, malignancy, systemic manifestations of chemical poisons, and achylia gastrica need only be mentioned. Some of our cases had been treated as tuberculous colitis for varying periods before coming under our observation. The differentiation is extremely easy. Blood is never a feature in tuberculosis of the bowel, and when it does occur is usually due to an associated lesion, such as hæmorrhoids or polypi; in ulcerative colitis hæmorrhagic stools are a constant feature. Then, again, sigmoidoscopic examination of the rectum and sigmoid is usually quite negative in tuberculous disease, whereas in ulcerative colitis the typical lesion as described can nearly always be seen. There are some cases where the disease is confined to the transverse or descending colon and sigmoidoscopic examination has been negative, but even in these cases the rectum becomes involved in time. (See Fig. 2). A negative sigmoidoscopic examination, therefore, does not invariably exclude ulcerative colitis. In these cases the x-ray becomes essential for diagnosis. A barium series and a barium enema

FIG. 2.—Illustrating a localized area of ulceration in the transverse colon which later became generalized.

FIG. 3.—Ulcerative colitis of seventeen years standing complicated by malignancy of the transverse colon.

should always be done to determine the extent of the ulcerative process, and also to determine the presence or absence of simple strictures or filling defects which might indicate malignant disease. A gastric analysis should always be made, as the cases with achlorhydria are often helped by the administration of hydrochloric acid.

During the period of natural remissions which occur in some cases, investigation of the stool will continue to show the presence of blood and pus, and sigmoidoscopic examination will reveal unhealthy mucosa which is œdematous and studded here and there with minute ulcers (latent colitis).

### COMPLICATIONS

The complications seen are: (1) arthritis; (2) hæmorrhage; (3) perianal abscess; (4) stricture; (5) polyposis; (6) perforation; (7) malignancy. (See Fig. 3).

### TREATMENT

Contrary to the experience of many writers on the subject, we have found a simple cæcostomy for purposes of irrigation of inestimable value. A soft catheter is purse-stringed into the cæcum. This can usually be done under local anæsthesia and carries with it practically no risk. The appendix is usually removed at the same time. We have instituted continuous irrigation in some of our severe cases, thereby giving instant relief to the patient from the distressing tenesmus and frequent evacuations. An ordinary irrigating-can, with Murphy's drip attachment, is connected to the cæcostomy tube and warm normal saline allowed to enter by a rapid-drop method. At the same time a small rectal tube is inserted and connected to a large vessel under the bed. By this means the cæcum and ascending colon are intermittently filled up with warm solution which is then flushed through the remainder of the large gut.

Normal saline solution is the best suited for this type of irrigation. Tannin, silver nitrate, and such-like irritants, should probably never be used. By means of the irrigation a cleansing of the ulcerated surface is accomplished and prevents to a large degree the absorption of septic products.

A transverse ileostomy (Brown's operation) is rarely necessary, but finds its usefulness in selected cases. Indications for this procedure are: (1) repeated profuse colonic hæmorrhages;

(2) generalized polyposis; and (3) in long standing cases where the colon has been converted into a useless, fibrous tube. It is not indicated in the acute early cases, as these can be controlled, with few exceptions, by hot irrigations through a small cæcostomy tube. In one of my cases, with profuse repeated hæmorrhages requiring transfusion, I did a transverse ileostomy under local anæsthesia, employing the principle advocated by Mikulicz in his operation on the sigmoid for carcinoma. The ileum was double-barrelled about twelve to sixteen inches from the cæcum along the antimesenteric surface for about three inches. This portion was returned to the abdomen and a rubber tube placed under the loop. Nine months later, when it was desired to re-establish the continuity of the intestinal tract, a crushing forceps was applied to this spur and within five days the patient was having normal bowel evacuations. The advantages of this extra-peritoneal anastomosis is obvious in a debilitated patient. Dr. N. J. Maclean has used this technique with gratifying results in cases of tumour of the small bowel and gangrene of the ileum with obstruction, when immediate anastomosis would undoubtedly have proved fatal.

The dietetic and medical management is important both during and following active treatment. A low-residue diet of high caloric value is indicated. Cod liver oil and calcium lactate by the mouth may be added. Stovarsol occasionally produces a spectacular improvement, but in these cases I suspect an associated amœbic infection. The drug must be used very cautiously, as some patients have an idiosyncrasy to it.

Finally, it should be recorded that we are using at present an autogenous serum prepared by Dr. F. Cadham. The serum is obtained by injecting into animals the Flexner bacillus isolated from recent cases. Nothing conclusive can be stated at this time, but it is likely to prove a distinct advance over other methods of treatment. This work requires experimental confirmation.

Personally, I feel that the final solution of primary ulcerative colitis will not be medical, surgical, nor vaccine therapy, but that serum therapy will eventually cure the disease.

## SUMMARY

1. A new method of obtaining specimens for bacteriological studies is presented.

2. The advantages of a modification of the usual transverse ileostomy are mentioned.

3. A new advance in treatment by serological methods is indicated (autogenous serum).

4. Ulcerative colitis, according to our observations, is due to infection with *Bacillus dysenteriæ*, and should be regarded as a form of bacillary dysentery.

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The July issue of the *Kenya and East African Medical Journal* contains a report of an investigation into animal nutrition in Kenya, the supervision of which was undertaken by Dr. J. B. Orr, director of the Rowett Research Institute, Aberdeen. One conclusion reached was that, in areas where the pasture is deficient in minerals, an increased rate of growth in lambs and calves, and a better yield of milk in cows, can be obtained by feeding with appropriate mineral mixtures. The issue also contains an article on the control of bilharzia disease, by Dr. F. G. Cawston; and an account by Dr. A. R. Paterson of the organization of anti-malarial work in the Federated Malay States.

# DEPILATION WITH THALLIUM ACETATE IN THE TREATMENT OF RINGWORM OF THE SCALP IN CHILDREN*

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UNTIL thirty years ago the treatment of tinea capitis, or tinea tonsurans, was most unsatisfactory. Local applications of tincture of iodine, croton oil, and ointments containing ammoniated mercury, oleate of copper, sulphur, resorcin, salicylic acid, etc., were the usual remedies. Such treatment was tedious and usually lasted many months. The great difficulty in local therapy was the mechanical impossibility of reaching the fungi in the hair follicles. About the middle of the last century, institutions called "ringworm schools" were established in London and Paris. The average residence of patients was eighteen months for the common small-spored fungus cases, but some of the large-spored infections took three years to clear up. The economic importance of the disease is thus easily seen.

A tremendous advance in therapy took place when x-rays were found to cause depilation. Freund was the first to suggest their use. About the same time Sabouraud, of the Hôpital St. Louis in Paris, first used them in the treatment of ringworm of the scalp. MacKee[1] tells us that in 1904 Sabouraud and Noire devised a method of depilating the scalp at one sitting. Since that time this treatment has come into general use. The x-rays cause depilation by some imperfectly understood action on the hair-follicles. They have no direct effect on the fungus. When the hair falls the organisms are removed with it from the follicles. Any that remain may be reached by mild fungicidal applications.

Felden[2] tells us that in 1897 Sabouraud observed a patient who had lost almost all her hair after taking some pills prescribed for dysentery. He found on investigation that a number of these pills contained thallium acetate. After a few weeks the hair was restored completely. This suggested the use of the drug therapeutically but, after seeing some toxic symptoms, he gave it up and later returned to depilation with x-rays. Buschke, of Berlin, should be credited with really demonstrating the practical usefulness and clinical value of thallium acetate therapy in tinea capitis.

The therapeutic value of the treatment has been thoroughly tested in recent years. Drummond[3] states that Cicero and Peter, of Mexico City, have used the method in more than 500 cases with good results. About 1,000 cases were reported in 1926. Very little of this work was done in England until last year, when Dowling,[4] Firth,[5] Dixon,[6] Curtis[7] and others reported a series of cases.

During the past nine months 21 cases, 17 of tinea microsporon and four of favus capitis have

FIG. 1.—A case of tinea capitis before treatment.

* Read at a meeting of the Winnipeg Medical Society, Winnipeg, Man., Sept. 20, 1928.

been treated in St. Boniface Hospital Skin Clinic by thallium acetate. Three of the favus patients had been treated with x-rays unsuccessfully before coming to St. Boniface. Two of the twenty-one children are still under treatment.

The technique has been as follows. After a general examination in the pædiatric clinic, the child is carefully weighed without any clothes. Thallium acetate is accurately prescribed in a dosage of grs. 1/8 (8 mg.) per 2¼ lbs. (1 kilo) body weight. The drug is administered in a single dose in half a glass of sweetened water first thing in the morning and no food is given until noon. From the first day a fungicidal ointment, ammoniated mercury (2 per cent), or sulphur (5 per cent), is applied night and morning to the scalp. There is also a daily shampoo with liquid green soap. About the twelfth or fourteenth day, the hair begins to loosen and adhesive tape is used to assist in depilation, which is usually completed about the twenty-first day.

FIG. 2.—Complete depilation after the use of thallium.

FIG. 3.—Growth of hair two months later.

Re-growth after thallium depilation begins very early. We have observed it after one week in some of our cases. Because of this it is most important that the shampooing and daily application of a mild antiseptic ointment should be kept up for at least one month after the hair falls. This is essential as a protection to the new hairs against infection.

There has been a good deal in the literature about the toxic effects of this drug. The commonest symptoms reported are joint and muscle pains, nearly always in the lower limbs. These

FIG. 4.—A case of favus before treatment.

FIG. 5.—Complete depilation after the use of thallium.

FIG. 6.—The same case three months later.

pains generally begin about a week or ten days after the taking of the drug. Loss of appetite, drowsiness, and irritability have been noted. In our series we have had three children with toxic symptoms. One boy almost thirteen years of age was confined to bed for two weeks because of pain, swelling and restriction of movement in both knees and both ankle joints. He cleared up with rest and the administration of salicylates. One girl of ten had loss of appetite, with pain and swelling in the right knee. One week's rest in bed restored her to normal. Another boy, eight years old, complained of pain in both legs, but after three days in bed he recovered completely. We had one complete failure in a boy of ten with stout, coarse hair; one partial failure in a seven-year old girl; and another partial failure in a six-year old boy.

Pusey[8] informs us that Buschke summarizes the advantages of thallium acetate therapy as follows:—

(1) The treatment is extremely simple and costs almost nothing. (2) It can be used for children under three years of age. (3) It can be used in country districts where x-rays are not available. (4) It can be used for cases where x-rays have proved unsuccessful. (5) It may be used for cases of inflamed ringworm (kerion). (6) There is no danger whatever of permanent alopecia.

The disadvantages are: (1) Its toxic effects. (2) It is not so certain to cure as a good x-ray depilation, though this difficulty may, he thinks, be overcome by very careful local treatment.

## CONCLUSION

1. In our opinion the method of prescribing the drug is important. Two of our failures were due to under-dosage. Once the drug was dispensed in an ordinary powder paper and as it was a sultry day the paper absorbed part of the drug; another time a gelatine capsule was used and as this was dispensed on a very hot day the capsule appeared to melt and some of the drug escaped and was absorbed by the wrapper. Thallium acetate is very soluble in water and in humid atmospheres tends to deliquesce. Our experience has taught us to use a glass vial as a container.

2. Our limited experience has shown the value of this form of therapy, in feeble minded children, in kerion (inflamed ringworm), and particularly in favus capitis. The latter responded to treatment very satisfactorily.

3. We believe that treatment by thallium acetate marks a real advance and will be welcomed particularly by the rural practitioners in this country. It must be borne in mind that toxic symptoms are likely to occur in children approaching puberty.

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# PHARMACOLOGICAL AND TOXICOLOGICAL ASPECTS OF THALLIUM

BY M. J. ORMEROD, M.B.,

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ALTHOUGH thallium was detected spectroscopically by Sir Wm. Crookes in 1861, and investigated chemically by Lamy in 1863, it was not introduced into therapeutics until about thirty-five years later. Its first employment was to check the night-sweats of tuberculosis: 5-10 mgm. per day of the acetate was a common dose. The anhydrotic action continued only while the drug was being taken. After the drug was discontinued a curious patchy baldness occasionally ensued. Sabouraud (1897) and Richet (1899)[1] demonstrated this as a specific thallium effect, and the former used the drug in the form of a 10 per cent salve as a depilatory in the treatment of scalp ringworm. Depilation followed some weeks after the salve was first applied, apparently indicating an action only after absorption, rather than a local effect. Toxic symptoms, such as enteritis, albuminuria, and œdema, occurred so frequently that he discontinued the use of the drug.[2]

In 1900, Buschke in Germany commenced an experimental study of the drug, and most of the literature to-day is the result of his prolific pen. He has experimented with animals from the tadpole to the ape, and many interesting results are reported. Tadpoles immersed in dilute thallium solutions fail to grow or continue development.[3] Rats fed on thallium develop bone changes histologically identical with rickets or osteomalacia.[4] Old rats lost the sexual instinct; young rats suffered atrophy of the testicles; very young rats developed cataract.[2] The adrenal bodies, post-mortem, showed vacuolation and deficiency of epinephrin content.[2] All these effects Buschke attributed to a severe endocrine disturbance. The falling of hair was, of course, a conspicuous effect in all his experiments. A curious fact was that the long sensory hairs on the rat's nose were not affected by thallium. In work on human beings, it was found that nostril-hairs, eyelashes, inner parts of the eyebrows, and, where present, hairs in moles, also remained fast while all other hair fell out.[3] Buschke therefore assumed that, since the sympathetic nervous system is closely associated with the endocrines, there was a sympathetic effect here, and that all hair which fell out was innervated by the sympathetic system; all that remained firm was otherwise innervated. This, of course, is pure theory, since no microscopic work has been done to support it. Thallium's action in suppressing the secretion of sweat suggested that it might be antagonistic to pilocarpine. Experiments showed that pilocarpine's action is not affected by thallium, and Buschke states that such action as thallium has is exerted centrally and not peripherally on the nervous system.[5]

At a meeting of the Royal Society of Medicine in 1927, Dixon[6] reported his observations on the action of the drug. His researches indicate an effect on the nerve ganglion or synapse, in that impulses pass through much more easily, especially in the sympathetic system, after the use of thallium. The immediate effect of the injection is a relaxation of all smooth muscle, suggesting a possible augmented sympathetic action. Depilation occurs after two weeks. A curious exhibit was a picture of a rat with a small shaved area on the back, fed on thallium, and finally presenting the picture of complete baldness with the exception of the shaved area, in which a luxuriant growth of hair had occurred. In many investigators' reports is noted the richness of re-growth of hair after thallium. Histological examination of skin and hair in the areas of alopecia has shown no considerable or permanent change in the hair follicle, except in the case of prolonged thallium feeding, when atrophy does occur.

While there are records of hundreds of successful treatments, there are a few reports of thallium poisoning available also. Swain and Bateman (1910),[7] injected several animals with thallium salts. The main facts brought out by them are: (1) in large doses, thallium acts much

like lead or arsenic; (2) the action of thallium is cumulative; (3) early involvements of the central nervous system (apathy, tremor, paralyses) and of the kidney (albuminuria, diuresis) are characteristic. Pauchly, (1926)[2] reports three cases with a mildly toxic reaction in a series of fourteen cases treated: all three showed transient albuminuria and glycosuria. Davies and Andrews, (1927)[8] report a case where two sisters, aged eight and eleven, received doses of 8.5 mgm. per kg., of thallium acetate. The younger felt no ill effects whatever and depilation was satisfactory. The older sister reported in two weeks, just after the hair commenced falling, with marked and painful œdema of the legs, swelling of the knees, and pain in both knee-joints. Symptomatic treatment was given. Two days later the child's parents reported that she had had a fit, epileptiform by the description, and had then been semi-conscious for two hours. Frequency of urination followed (every half-hour for several hours). The only pathological substance in the urine was acetone, which persisted for several days in spite of a high carbohydrate diet. Five weeks after taking the drug, the child was discharged from hospital, emaciated, with some tenderness of legs, but able to walk, and suffering from occasional attacks of lethargy and œdema of the face, lasting fifteen minutes. In commenting, the authors speak of arthritis and peri-arthritis of the knee-joint "with which we are familiar as occurring *nearly invariably* to a lesser degree." Other therapeutists noted severe nerve and muscle pains as being frequently associated with thallium treatment.

Two suicidal (unsuccessful) cases reported in Germany [9, 10] (doses of about 10 mgm. per kg. in adults) indicate toxic action as mainly: (1) violent gastro-intestinal upset (anorexia, vomiting, diarrhœa, constipation, achlorhydria, colic); (2) peripheral polyneuritis; (3) transient kidney disturbances; (4) cessation of menses; (5) early lymphocytosis followed by eosinophilia (endocrine disturbances are frequently associated with eosinophilia). Four weeks after taking the drug, thallium was still demonstrable in the blood and urine, and blood-calcium and potassium values were then normal. No previous determinations had been made.

A homicidal (successful) case is also reported.[11] A brand of rat-poison containing about 3 per cent of thallium salts was the agent employed by the wife against her spouse, After a six-weeks' stay in hospital, with much the same symptoms as above, the man was well enough to go home, but a second poisoning led to his death in three weeks. An incomplete report[13] of perfusion of a frog-heart with a solution containing thallium states that after a few beats the heart stopped in diastole. The addition of calcium salts to the fluid resulted in a prompt resumption of the beat.

Efforts to avoid toxic symptoms by a combined therapy of a half-dose of thallium and a half-dose of x-ray have received favourable mention by some, but results are not so uniformly successful as with thallium alone. The combination of thallium and x-ray or radium therapy has been successful in treating two cases of epithelioma which were resistant to radiation alone.[9] Apparently, there is some common basis of explanation of thallium and x-ray action in this matter, but as yet it remains a mystery.

Post-mortem analyses of body-structures show that the muscles act as the main storehouse for thallium.[9] The analysis of skin and hair fails to show thallium in these structures,[5] so that local action does not appear to be the clue. Excretion is mainly by the kidney, but thallium may be detected in all the body secretions after feeding the drug. It is readily excreted in milk, and experimental evidence is present to show that the fetus is poisoned by feeding thallium to the mother.[12] Buschke believes this may be an indirect effect, through malfunction of the endocrine glands.

## SUMMARY

From this array of clinical and experimental evidence, a few points may be extracted.

1. Young children up to seven or eight years of age withstand thallium well; older children and adults are more likely to show toxic symptoms.

2. Evidence is offered of various endocrine disturbances during the use of thallium. Whether these are directly due to the drug cannot be stated definitely.

3. Evidence of disturbed metabolism, especially calcium deficiency, is presented. The muscle cramps could be correctly explained by a removal or antagonism of calcium by thallium. Œdema, diuresis, etc., may be due to increased

capillary permeability, which occurs in calcium deficiency. Disturbances of the central nervous system, such as fits or tremors or apathy, occur where calcium metabolism is upset, as in injury to the parathyroids. Osteomalacia and rickets are definitely due to calcium deficiency. Whether such calcium disturbance is caused directly, or is secondary to parathyroid damage, is a matter for further investigation.

4. Nerve damage does not appear to be permanent. Kidney damage also appears to be transient, if the kidney is damaged at all.

5. No permanent damage to the hair-follicle results from therapeutic doses of thallium salts.

6. Since the action of thallium is cumulative, it seems that some toxic effects must be endured for the sake of the therapeutic benefits, and drugs to increase elimination, such as sodium thiosulphate, are contraindicated.

7. No observers, clinical or experimental, have followed cases for a sufficiently long period to say definitely whether or not permanent damage may follow such chemical or endocrine upsets, particularly in view of the fact that most of the patients are growing children.

Some research into thallium has already been done by our department, and further work is being carried on now, in order to clarify some of the problems set forth in this paper.

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# NEPHROSIS IN CHILDREN*†

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## III. COURSE, PROGNOSIS AND TREATMENT

THE insidiousness of the onset of nephrosis is one of its characteristic features in most of the cases. Weeks, or even months, of vague ill-health, pallor and lassitude are succeeded by a gain in weight, which at first is regarded as improvement. Such increases in weight may come and go several times before their true nature becomes manifest and œdema is demonstrable. Subsequently, the hydropic state develops rapidly and in a few days general œdema and anasarca may be present to an extreme degree. More rarely, the development of the dropsical state follows an acute upper respiratory infection in a previously healthy child. Less frequent still are those cases in which uræmic symptoms due to cerebral œdema usher in the disease. Such cases do not always present any marked degree of general œdema; this may be limited to that of the cerebrum and the external genitals.

The mode of onset exerts considerable influence on the subsequent course of the illness. Those cases in which the onset is sudden, particularly those with cerebral œdema, usually run a more or less acute course for some weeks, and then all signs and symptoms of the disease disappear. In cases in which the disease is more gradual in its development, recovery is likewise slow, if indeed it occurs at all. In those in which the disease becomes chronic, months of invalidism, during which gross œdema recurs again and again, or persists over long periods, may be ultimately followed by cure or terminated by an intercurrent infection. More rarely, as pointed out in a previous paper,[1] chronicity may produce secondary changes in the kidney which

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† Part I, Nature, Etiology and Pathology, *Canad. M. Ass. J.*, 1928, xix, 46. Part II, Laboratory Findings, *Ibid.*, 555.

result in the development of the clinical and pathological picture of chronic interstitial nephritis. Such a change may occur independent of, or subsequent to, an acute nephritis superimposed on the nephrotic kidney.

No urinary symptoms are complained of during the period before the development of œdema. When much œdema is present, periods of oliguria alternate with those of polyuria. Anuria is frequently an initial symptom in acute cases, and may occur also during the accumulation of œdema in the more chronic conditions. When the patient's weight is more or less stationary the amount of urine excreted is usually about normal. Nocturia is seldom seen.

The intense degree of albuminuria present in nephrosis persists as long as any symptoms are present, and often much longer. This may be for many months, and the consequent depletion of body protein suggests some of the therapeutic measures that may be employed. Generally speaking a decreasing amount of albumen in the urine indicates improvement.

The temperature is often subnormal, with frequent rises from trivial or undiscoverable causes.

The anæmia in acute cases is usually more apparent than real, but in the chronic disease becomes so severe that diet and medicine alone are inadequate treatment. Simple transfusion, which at once cures the anæmia and increases the blood proteins, is indicated.

The hypersusceptibility of these children to secondary infection is but too plainly evident throughout their illness. Such infections are the most frequent cause of death. This proneness to infection applies not only to infections of the upper respiratory tract but to those of operative wounds of any kind, thus necessitating the use of most careful technique at all times.

## DIAGNOSIS

Little difficulty in making the diagnosis is encountered in most cases. The presence of œdema and albuminuria associated with the absence of hæmaturia, and the normal blood pressure in cases uncomplicated by cerebral œdema, justify a diagnosis of nephrosis.

The laboratory findings have been described in a previous paper.[2] Those that are pathognomonic are the lipæmia, the low blood protein, and the absence of any increase of the nitrogen end-products of the plasma. Characteristic changes in the urine are the large amounts of protein it contains and the number of casts and white blood cells usually found microscopically.

A differential diagnosis between nephrosis and œdema due to a congenital anomaly of the kidney must sometimes be made in infants. In the latter, urinary symptoms, such as anuria, are usually more severe and persistent, and the blood chemistry test shows evidence of nitrogen retention. In patients of this age, nephrosis must be distinguished from syphilitic nephritis or nephrosis because of the invariably fatal outcome of the latter. In luetic cases, physical examination reveals splenic and hepatic enlargement or other signs of lues, and the lipæmia is much more marked.

## PROGNOSIS

Two important factors in the prognosis have been mentioned, *viz.*, the age of the patient, and the mode of onset of the disease. Practically all children under eighteen months of age recover completely, unless the cases are luetic in origin or a fatal secondary infection occurs. The rate of recovery and its completeness vary directly with the speed with which the symptoms develop. Fifty-five per cent of those of all ages with an acute onset recover, whereas in only about 20 per cent of cases which have developed slowly is there complete recovery.

The practicability of removing focal infections completely is another influential factor in predicting the outcome in any case. It is quite well-known that removal of infected teeth and tonsils has not met with the degree of improvement anticipated in this type of renal lesion, but we now know that this is because in their removal we have only partially eradicated the infective foci. Further search for more obscure foci is indicated.

The absence of complicating infection, particularly tuberculosis, and of other renal lesions, considerably improves the outlook.

As pointed out in a previous paper,[2] functional tests and chemical blood tests, particularly as to the kidneys' ability to concentrate, and the degree and persistence of the hypercholesterolæmia may prove of some prognostic value.

### TREATMENT

1. *Rest.*—Rest in bed should be enforced in all acute cases and during the acute exacerbations in chronic ones. Little is to be gained by prolonged stay in bed after chronicity has become established. Indeed many chronic cases show definite signs of improvement when allowed up and about.

2. *Focal Infections.*—The removal of focal infections in these cases is as important as it is in other types of kidney disease, but the foci are usually more obscure and their removal more difficult than in the more obvious types found in acute glomerular nephritis. Offending teeth and tonsils should first be removed, because, although their removal causes little amelioration of symptoms, a very common source of secondary infection is removed. Thorough search for further infective foci in the accessory sinuses and in the intestine should now be made and proper treatment instituted.

3. *Diet.*—The low blood protein, high blood fat, and absence of nitrogen retention in these cases suggested to Epstein[3, 4] the advisability of using high protein, and low fat and carbohydrate diets in their treatment. Carbohydrates were to be kept low because protein would be better utilized, and because their excessive use causes fluid retention. Such diets as originally described consisted of 120 to 240 grm. of protein, unavoidable fats 20 to 40 grm., 150 to 300 grm. of carbohydrate and salt to make the diet palatable, with 1200 to 1500 c.c. of fluid included in the food as a minimum for the patient's comfort. Such diets have met with varying degrees of success in the hands of various observers. Certain modifications must be made in adapting these diets to the use of children, and when these are made they are to be recommended in the treatment of the chronic cases. In acute cases, it is better to use diets such as outlined in a previous paper,[5] consisting largely of milk, fruits and vegetables with no added salt, and protein adequate for the child's requirements, approximately 50 to 60 grm. daily.

The modified Epstein diets advised for use in chronic cases are as follows. In infants, unsweetened protein milk affords the easiest means of providing a relatively high protein, low fat and carbohydrate diet. It may be used even in acute cases of this age. As improvement occurs, fruit and vegetables suitable to the age of the child, junket, chicken, bacon and, later, cereals are added. In older children 80 to 100 grm. of protein, or nearly twice their requirement, are given daily. Carbohydrates are kept low by using large quantities of green vegetables and fruit. The liberal use of these not only furnishes an abundance of whatever protective substances against renal injury they may possess but aids materially in overcoming the secondary anæmia present. The salt intake is restricted to that contained in the milk and vegetables given. Fluids are limited to 1,000-1,200 c.c. daily.

4. *Medication.*—Diuretics must be given first place in the consideration of the drug therapy in nephrosis. The persistence of the œdema and its gradually increasing resistance to all drugs make its treatment a serious question. Urea is one of the earlier recommended drugs used and is still employed very frequently to advantage in these cases with no nitrogen retention. Doses of 1-2 grm. (15-30 grains) may be given thrice daily. It appears to be most beneficial in infants. More recently, the use of acid-producing salts to produce diuresis has become common. Either calcium or ammonium salts may be used. The chloride is the best one to use. Ammonium chloride is more powerful and much less nauseating than calcium chloride, and for these reasons its use is advised. Large doses (1-3 grm.), (15-45 grains) must be given two or three times daily. After producing diuresis it should be at least temporarily discontinued. In patients in whom myocardial failure is present, it is best to use digitalis as well.

Another diuretic of an entirely different type is thyroid extract. It probably acts by stimulating the general metabolism which is usually low in these cases. It is worthy of trial in cases resisting other diuretics, as the therapeutic test is about the only one which demonstrates in which cases it will be effectual.

Finally, in chronic cases, where the œdema increases despite the proper use of the diuretics mentioned above, one may be forced to use novasurol or merbaphen. This is an organic mercury compound which acts as a powerful diuretic but unfortunately it is a kidney irritant. It should never be used in acute cases of this disease nor in any other type of nephritis. Johnstone and Keith[6] have recently

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demonstrated that the preliminary use of small doses diminishes its toxicity and results in the acquirement of some degree of immunity to its toxic nature when larger doses are given later. The drug must be given intravenously. One-fourth of a cubic centimetre may be given as an initial dose, increased every second day until 1 c.c. is given at the third or fourth injection. Once diuresis starts it should be discontinued. A preliminary course of ammonium chloride for three or four days enhances its action.

Special measures are needed in cerebral œdema, in that the excessive fluid must be withdrawn from the cranial cavity and then diuresis established to prevent its recurrence. Two methods of treatment are practised. In one, a lumbar puncture is done and the cerebrospinal fluid withdrawn very slowly to prevent such an accident as an impacted medulla occurring; ammonium chloride is given by the mouth and saline purgatives by the mouth or bowel. In the second method, 1 per cent magnesium sulphate is given intravenously. Care must be taken that it is given slowly, 1 to 2 c.c. per minute, and that the total amount given does not exceed 10 c.c. per kilo of body weight. The injection is not infrequently followed by a transitory increase in the blood pressure and in the severity of the symptoms. This is succeeded in one-half to one hour by marked improvement in the patient's condition and a fall of blood pressure. Fifty per cent magnesium sulphate, 1 to 2 ounces, is given by the bowel every four hours until catharsis is established. Ammonium chloride is given by mouth. Usually the improvement is permanent, but in some few cases a second injection of magnesium sulphate is needed 12 to 24 hours later. It should not be given sooner than twelve hours after the first.

In cases of anuria, the exhibition of ammonium chloride is not infrequently adequate in starting a flow of urine. Should this measure fail, hypertonic glucose solution (20 per cent) should be given intravenously. The injection of 300 to 500 c.c. of this solution seldom fails to produce satisfactory results.

5. *Operative.*—In addition to the operations needed to remove focal infections and in the cure of secondary anæmia by transfusion, two others are used in the treatment of this disease. First and most frequently required is that of aspiration of the excessive fluid in the chest or abdomen. There are two indications for the mechanical removal of this fluid. First, the accumulation may be so great as to cause cardiac or respiratory distress of so urgent a nature that rapid relief must be given, and this is best accomplished by paracentesis. Secondly, when marked ascites is present, and the œdema not very responsive to drug therapy, aspiration of larger amounts of ascitic fluid on two or three occasions often produces satisfactory results. Great care must be exercised not to introduce secondary infection.

The other operation used is that described by Edebohls of stripping the capsule of the kidney. This should not be done until other measures have failed, as the operative mortality due to secondary infection is high. Two such operations have been done at the Hospital for Sick Children. One resulted in striking benefit to the patient; the other ended in death a few weeks later from secondary infection.

6. *Hydrotherapy.*—Hot packs have been and are still used in treating œdema in these cases. We have found them useless, and were unable to demonstrate, by weighing the patient before and after, that any fluid loss at all occurred. Some patients even gained weight. Local hot packs over the bladder and kidneys are sometimes useful in treating anuria.


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**The Pathogenesis of Raynaud's Disease.**—Iwai and Nin conclude that Raynaud's disease is due to the operation of auto-hæmoagglutinins and not to a vasomotor neurosis. The attacks are due to mechanical occlusion of the vessels in consequence of the agglutination of the blood corpuscles, a condition of things precipitated by exposure to low temperatures.—*Die medizinische Welt*, June 16, 1928.

# ANTI-TUBERCULOSIS MEASURES IN RURAL DISTRICTS*

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EVEN at a World's Congress we cannot pretend to be internationals, but must speak each in his own tongue, each from his own viewpoint, and each largely about his own country or province or locality. We can just bring our own national product, with its peculiar local form or colour or flavour, to this great international fair. In spite of peace-parleys and trans-oceanic flights the shadows of Babel still hang over us.

In any country city-dwellers become world-citizens fairly easily, but rural people are more conservative and national in speech and thought, customs and usages. Even within any one country there can be great differences. In Canada, at any rate, west cannot speak for east, or east for west, on any matter of importance. While modes of thought thus differ, and customs and conditions differ also, principles are of more universal application, and the plans of the smallest village can be at least suggestive, even at the antipodes. And it is well worth noting that the fall in the tuberculosis death rate has been greatest in cities and least in rural areas.

My place of work, and therefore necessarily my text, is Manitoba, the central province of the Dominion of Canada. It has a considerable area of wild unsettled land, and a total population of 600,000, one-third being in a single large city. In typical settled rural areas devoted to farming, the population is about ten to the square mile. The chief occupation is farming, though in the non-agricultural parts of the province mining has begun. Most farmers own their farms. The chief anti-tuberculosis effort centres around the Manitoba Sanatorium, with 280 beds, a voluntary institution, performing provincial functions and having a fair measure of provincial and municipal support. There is, besides, a hospital of one hundred beds, whose particular "parish" is the City of Winnipeg only, while the sanatorium has an interest in both city and country, especially the country.

The Manitoba Sanatorium was begun with the idea that the treatment of sick people, at an early stage of pulmonary tuberculosis, was its greatest, almost its only, function. But much water has flowed under the bridge since that time. We have learned that a sanatorium, like any other group of good citizens, cannot altogether choose its functions, but must take the situations as they are and perform any function that will be most useful in changing conditions for the better. So tuberculous patients have been taken in and cared for in late as well as early stages; indeed, more late than early, sometimes even moribund, tuberculosis of all organs and all forms, and sometimes non-tuberculous pulmonary conditions as well. Teaching began with patients, spread to doctors and nurses and to the people of the province generally, and has been perhaps most serviceable of all since the students of the provincial medical school began to come, fifteen years ago. They have come ever since, practically all of them.

At the very beginning we saw the importance of better and earlier diagnosis, and saw the duty of the Sanatorium in this part of the big work. Gradually we have gone farther and farther afield, and now are trying to cover our whole province, in diagnosis as well as treatment, and in search as well as diagnosis.

Every tuberculosis sanatorium and hospital should have its own parish, its own field of work, be it city, county, province or state, and all within that area that relates to anti-tuberculosis effort should have a common centre. In rural areas we believe that centre should be the sanatorium. It should not be considered a work of supererogation for a sana-

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torium to do systematic missionary work throughout its territory, but one of its primary and principal duties. Diligent search for people in its own local field may be quite as worthy a work as research in the broader field of tuberculosis in general, and one will be quite as instructive as the other.

In the past three years the particular parish of the Manitoba Sanatorium, the rural areas of a prairie province, has been fairly extensively and intensively cultivated, and we are beginning to learn how very workable and fruitful these methods are, and how well suited to rural areas. Members of the medical staff, with a public health nurse, have gone out in parties of two, three, or four, with a portable x-ray apparatus and a technician, to conduct "clinics" here and there throughout the province. Most of the centres have been small "towns" of two or three hundred to a thousand population. Each clinic draws from one to two hundred people for examination from a circle fifty to eighty miles in diameter. City people demand care at their own doors, in Manitoba as elsewhere, but the more widely country people are scattered, the farther they are willing to travel for this or any other purpose. It is as easy to bring the country suspect forty miles for an examination as the city suspect from the next block.

In good time before a "clinic," all doctors in a considerable area have been communicated with; indeed, all in the province have had notices. Public health nurses of special experience have traced up "contacts" and persuaded them to come. Such a "clinic" continues usually through two days and takes from six to ten "doctor-days," a big "doctor-day" being about twenty-five average examinations. Of real suspects not so many can be examined. X-ray plates, single, or stereoscopic when necessary, are made freely. Indeed, few patients are seen without x-ray plates. It is in these doubtful or borderline cases that plates have their greatest value. A few plates can be developed at the time, but most are carried back to the sanatorium to be developed and read at leisure. Ample notes are taken and as soon as possible after a "clinic" the evidence in each case, including that of the x-ray plates, is summed up, typed and sent back to all doctors concerned, health officers, health departments, etc. One copy of a report of the one hundred and fifty or more examinations in one such "clinic" runs to about thirty closely written pages.

Without the hearty co-operation of the local doctors such a visit of the sanatorium staff would be a failure, or at the best would do harm as well as good. But we have never in even one case failed to get this co-operation. Why should we, when we bring the best we can in diagnostic facilities and skill and place them freely, *and free*, at the disposal of any patients the doctors care to bring? In such "clinics" and with the sanatorium itself as an all-the-year-round stationary diagnostic centre, we have in fourteen months examined about 3,500—mostly contacts and suspects—about one in a hundred of the rural population of the province.

Now, one in a hundred taken at random is just 1 per cent, a small proportion. But a well chosen one, searched out of a hundred by following clues, a one in a hundred made up altogether of contacts and suspects, a one in a hundred that includes most people the doctors and nurses know of, or that official records of illness and death lead to, such a one in a hundred, may, and indeed does, take in a very considerable proportion of the people who need most to be examined. From 50 to 75 per cent of those so far examined were known to be "contacts."

Many old sanatorium patients and others known to have had tuberculosis are seen, and this is very desirable, especially when the reviews are made by members of the sanatorium staff who already know these patients. But the sensational feature of the summing-up of these journeys is the number of *discoveries* of disease made in them for the first time. In a considerable series of examinations 12 per cent were found to be tuberculous, nearly one-third of these in the active stages. In the same series 11 per cent besides were suspected and considered in need of careful watching. So when the group examined is made up of contacts and suspects and known cases not under institutional treatment, the definitely tuberculous have been found to be one in eight, the actively tuberculous one in twenty-four and, besides these, the definitely suspected of disease, one in nine. These "clinics" evidently gather in fairly well those who need to be seen and known, and treated or kept under observation.

The amount of disease and disability found, apart from tuberculosis, is another sensational finding. Of the people seen only a few consider themselves really ill or are at present under doctors' care. Even those found to be ill have not yet made the decision that they need medical care. Yet, among these fairly ordinary members of the community, besides tuberculosis, 11 per cent had septic infection of the lower respiratory tract, one-fourth of whom had reached already a stage of definite bronchiectasis; 28 per cent had very bad teeth and gums, and 25 per cent septic tonsils, both of which were keeping up filthy mouth conditions, impairing health and even, in most cases, already causing definite symptoms. A few very various disabilities and diseases were found also, in heart and cardio-renal relations, gall bladder, pelvis, intestine, nose and throat. Among others were goitre, arthritis, trachoma, infected sinuses, varicose veins, chorea, dysmenorrhœa, actinomycosis, blood dyscrasias and, as would be expected, asthma, hay fever, malnutrition, rickets, empyæma and many pleurisies.

### PRINCIPLES STATED

This brief account of the development of anti-tuberculosis work in the rural areas of a prairie province has already indicated something both of things done and conclusions reached. Some of the main principles of the work as we see them might be put down a little more fully.

A first principle, we consider, in both sanatorium and field work, is that tuberculosis is a family, community, and state problem, as well as an individual problem. When even one man in a province or country is tuberculous, that province or country is to that extent tuberculous. Treatment of the sick man—compassion first—may make the stronger appeal to most people, but treatment of the infected state—safety first—is the more important measure. Cure is good but prevention is better. The history of epidemiology shows that disease has been conquered more by prevention than by cure. But, fortunately, the cure of the tuberculosis of the man and the cure of the tuberculosis of the state can go on well together; indeed, the cure of the sick man is an important part of the cure of the sick state. Still it must never be forgotten that when even one man within the confines of one state is tuberculous there are the two separate and distinct interests, the interest of the man and the interest of the state, and the interest of the state is paramount.

A second principle, old and familiar, yet, like many other old and familiar principles, such as the Ten Commandments and the Golden Rule, needing to be restated often if it is not to be forgotten, is this, that *every case of tuberculosis comes from some previous case.* Whatever environment may be, and it is a tremendously important matter, there can be no infection and no disease without the actual transference from one individual to another, directly or indirectly, of the germs or seeds of disease. Life comes from life, wheat from wheat, tares from tares, and tuberculosis from tuberculosis. If every single present case, therefore, were fully dealt with by diagnosis, observation, treatment, segregation and adequate control, there would be no future cases. There will be tares among our good grain to-morrow only as we allow tares to grow and ripen and scatter in our fields of grain to-day. There will be tuberculous disease and tuberculosis deaths to-morrow only as we allow tuberculosis infection to slip through our fingers and scatter throughout families and communities and through the whole land to-day. From what we have sown we reap some good grain, but mixed and shrivelled by the tares we have allowed to sow and re-sow themselves in all our fields.

Since each diseased person is a potential scatterer of disease, and usually a daily and hourly scatterer of disease, the big job is to find diseased persons, to make them safe by treatment, or keep them safe by segregation or education, and to search diligently among all who have been in contact with open disease for evidence of infection. It is the big work of the state, or of the volunteers to whom the state sometimes delegates the work and responsibility, to use all the means they can command to make the contacts, the infected and the openly diseased people as safe as possible for themselves, safe for their families, safe for their communities and safe for the country at large, if possible, *absolutely* safe. First, they have to be found, then treated, segregated, supervised and controlled. That needs machinery for case-finding, diagnosis, treatment, segregation. That means the treatment of ac-

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tively diseased people as early, as late, and as long as treatment is necessary; the segregation or effective control of spreaders while they are spreaders, and as soon and as long as they are spreaders.

This program demands beds, many more beds than most countries or provinces have at the present time, beds in sanatoria, beds in hospitals, beds in places of "preventorium" type; but, always beds, plenty of beds; beds waiting for the people, not people waiting wearily month after month for the beds; beds for treatment, for observation, for segregation; even beds to die in, so that family and friends may not suffer from the last fatal seed scattering from the tuberculosis deathbed. What is the use of finding sick and infective people if we can just wish them well and leave them as we find them? The farmer's indispensable tools are plough and reaper; the carpenter's, axe and saw; the state's indispensable tools in dealing with tuberculosis are a clinic to find cases and a sanatorium or hospital bed to treat and segregate them. With beds enough to take in all who need to come, the very day they are found—the suspected, the active, the not-yet-very-active, the hopeless—the campaign would pass into an entirely new phase. Our worst problems are really the problems of trying to struggle along without beds. The call is for beds, more beds, beds for all needs,—BEDS.

It cannot perhaps be raised to the status of a principle, but can be put down as an observation, that tuberculosis infection is not as a rule passed from person to person of the same generation, but from persons of one generation to persons of another. In an infected circle, suspect the older people as the source, parents and grandparents, uncles and aunts, rather than brothers and sisters and cousins.

It is a truism that early disease does not declare or report itself, or come automatically for treatment, but must be hunted for. Much the same is true of moderately advanced or advanced disease. It also must be hunted for. Most things we want to find must be hunted for, such as gold, silver, precious stones, knowledge, skill. They do not drop themselves down at our doors. Not much of value comes to us without trouble and sweat. Tuberculosis which is left to find itself usually staggers in hopeless, after spreading the seeds of disease broadcast throughout family and community. If people are to be made safe for themselves and the community, at the right time and in the right way, they must be hunted for.

Our whole plan of dealing with sickness is a poor plan. Modern medical science is wonderful, but the system of applying it to the needs of people is mediæval. Under this system the first diagnostician is always unskilled, and always has a motive for postponing diagnosis, the first diagnostician being the sick or suspected man himself. Before he even says "Good-day" to the man of skill, the physician, the sick man must decide, first, that he is sick and, second, that he is sick beyond the ordinary means of repair, such as rest, which he can himself apply, and so needs skilled diagnosis and treatment. The skilled man comes in only after the unskilled man has made these two decisions, and he almost always makes them late.

The ideal solution, of course, would be that all people, rich or poor, in country or city, intelligent or ignorant, sick or well, or half-sick or half-well, should each year, or each half-year, be looked over thoroughly, system by system, function by function, part by part, with the use of x-ray plates, and an appraisal made, and a decision reached as to what repairs are necessary. Such an examination would necessarily be costly, for if not made well it is better not made at all. But this plan belongs to the future. People in general are not ready to ask for such examinations, and medical men, in our country at any rate, are not quite ready to make them. It is about time, however, that such routine examinations, for admission into training schools of hospitals, or into the army, or of an immigrant into a new country, should be made in this thorough-going way, and always with x-ray plates of the chest at least.

In the meantime, while waiting a half-century for the more perfect plan, we must fall back on some such temporary plan for case-hunting as the one already described. And even with this partial plan we will get most of what we are looking for, if we bear in mind that each case of tuberculosis comes from some previous case, if we trace up open disease and death, wherever they have been, and concen-

trate on contacts and suspects and known disease.

One principle about such a survey is that it should be both intensive and extensive. If there must be a choice, let it be intensive. Make few examinations thoroughly, with good facilities and skill, rather than twice as many hurriedly, with fewer facilities and less skill. Even with all facilities in office or hospital, the boundary line between the tuberculous and the non-tuberculous is often difficult to define without leaving many under the Scotch verdict, "Not proven." Out in the country, away from office and hospital, the difficulty is greater; therefore, such work should be careful and deliberate, and well-made, well-read x-ray plates are a necessity.

We consider it quite the best plan, almost an essential part of the plan, that this work should be done by members of the sanatorium staff. As has been stated, each sanatorium has, or should have, its own parish, its own field to cultivate, and in this field should search, diagnose, treat, teach and supervise. Sanatorium men need to see where tuberculosis grows, and how it grows; that is, they need field work, and cannot keep proper breadth of view without it; and on field work all the time men grow stale, lose the infective enthusiasm such pioneer work needs, and are better to come back for a time to the variety and orderliness and facilities of sanatorium duty. The outside clinic, an occasional part of the sanatorium staff man's duty, say, one week or month out and two or three or more weeks or months in, might be a good arrangement.

Finding people who need treatment, bringing them in for treatment, following them after treatment, getting in touch with their families and their doctors, and keeping in touch, is much more likely to be done well by one organization than by several. No sanatorium is doing its duty by its parish, or by itself, which has not a clinic with a wide-open door, and if the clinic be just extended and multiplied to cover the whole of the sanatorium parish, be it county, or province, or state, or country, the benefit all round is much greater. Experienced medical men, with the standing of sanatorium staff positions, if they have the skill they should have and any personality at all, should be welcomed by any doctor in any community. A necessary part of the plan, which makes for good feeling between sanatorium and physician, is that every bit of work done, every examination, every note, every x-ray plate reading, every recommendation, shall be communicated to the doctor of the person examined. In small communities, where people go from doctor to doctor, the easiest plan is to send a full report of all cases to each doctor. Reports are sent also to public health departments, municipal health officers, etc.

While the examination is primarily of contacts and suspects, and to rule out or rule in tuberculosis, still, once the man has come in, the examination should be as full as possible, and deal not only with tuberculosis but with general health. Bad teeth, septic tonsils, bad posture, malnutrition, should be enquired into and brought to the attention of the regular physician. The physician, it must be remembered, sees in the community only those who consider themselves sick, and sick enough to need his services, and few of the people we class as contacts consider themselves in these categories.

Another principle of importance is that anti-tuberculosis work should impose as little financial burden as possible on the ordinary individual. Treatment may usually need to be paid for in whole or in part by the sick man or his family, but in dealing with a long-drawn-out disease like tuberculosis payment is almost always a hardship, or in time becomes a hardship, almost always tends to postpone or limit the time of treatment, and often prevents treatment altogether. The burden of treatment of the indigent should be carried by the community in some form, and there is no reason why ordinary good citizens should not be at least part carried in the same way. A plan along this line in Manitoba, the treatment of the poorer people wholly carried, and of the ordinary people part carried, by a general municipal levy, has brought into the sanatorium three or four or five times as many as ever came before, for their good and the good of their families, their communities and the province at large as well.

After all, when a man with far-advanced, hopeless disease is found and sent to a hospital, who is it that benefits? The man often would prefer to go on as he had done before. Segregation to him may mean almost unwilling imprisonment, though safety for the community.

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All diagnosis, treatment, segregation and observation of a tuberculous person is diagnosis, treatment, segregation and observation of a tuberculous community or state. Almost everything we do is partly for the man's good and partly for the state's safety. In so far, then, as the man is treated to make the state safe, the state should help with the burden of payment. The state of the future, perhaps as municipalities, may carry the whole burden, and the tendency is very definitely in that direction in the western Canadian provinces.

The state, whether by municipalities or provinces or countries, cannot do everything the people need, out of ordinary revenues. Indeed, the state has already become a sort of community cow, that everybody wants to milk and nobody wants to feed. But the science of spreading over the community the burdens of things we need has not advanced so very much since the days when Matthew the publican sat at the receipt of custom. The state, it is true, cannot pay for all needed things, but it should do what is better; that is, plan for all. We need money much, but we need plans more.

Treatment should be free for those who cannot pay, but there is little doubt that diagnosis, at any rate, in occasional district clinics by a sanatorium staff, should be free for all. This is essentially missionary work, that is, work done by those who see a need for those who have a need but do not see it. The big thing is to have the people who need to be dealt with, *dealt with*. If everything done to eradicate tuberculosis were to be charged back upon the individuals who benefit, all anti-tuberculosis effort would stop this very day. Meantime, many good services have to be more or less the voluntary services of forward-looking citizens. The case-finding of the Manitoba Sanatorium has been so far a voluntary service, the only special fund for which has come from the sale of Christmas seals.

Such "case-finding clinics" find late, unreported cases. They find early cases among the contacts and suspects. They find many disease conditions, major or minor, other than tuberculosis. They keep up some supervision of those who have never been hospitalized and of others before and after hospitalization. All these things are of great importance. But perhaps they do most in what they teach. For, after all, *things done* teach more and better than *things said*. These clinics, by what they do, even if nothing is said, teach the community that tuberculosis spreads like noxious weeds, that each case comes from some previous case, that as ripe weeds are sure to have circles of seedlings around them so neglected tuberculosis cases are surrounded by infected "contacts;" that the apparently well must sometimes be suspected, that the routine examination of the well is a good principle, and that tuberculosis contacts are in a special class and should be watched. They teach also that tuberculosis is not a stroke of fate but the effect of causes, that in part at least it can be controlled, and even banished, by man.

The best anti-tuberculosis measures we have discovered for rural districts are sanatorium beds, sanatorium clinics, stationary and travelling, and sanatorium teaching.

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**Clinical Experience With Irradiated Ergosterol.**—It is the opinion of Alfred F. Hess and J. M. Lewis that irradiated ergosterol is by far the most potent of the antirachitic agents. It is an absolute specific. Cod liver oil in the amount of which it can be given is a specific of limited dependability—only moderately effective for the average infant, uncertain in action for the rapidly growing infant, and ineffective for the premature. Irradiated ergosterol is quite as valuable in tetany as in rickets, and in both disorders is remarkable for the rapidity as well as for the reliability of its action. As yet, however, no sufficient clinical experience has been had to define its proper dosage. Furthermore, the various preparations cannot be evaluated, as they have not yet been assayed on the basis of the number of "curative units (rat)" which they contain. The amounts now recommended and employed are unnecessarily high, as shown by the fact that they induce an excess of calcium and inorganic phosphorus in the blood in the normal as well as in the rachitic infant—hypermineralization. Too great emphasis has been laid in rapidity of action. It would seem advisable, before distributing unreservedly to the medical profession this potent concentrate, to make a more thorough clinical study of its dosage, as has been done in regard to other potent extracts. In view of its reliability, its high degree of activity and its ease of administration, irradiated ergosterol should prove a most valuable addition to the rapidly increasing fund of specific antirachitic agents.—*J. Am. M. Ass.*, 1928, xci, 783.

# INGUINAL HERNIA AND ITS RELATION TO COMPENSATION

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THE term "traumatic hernia" has been used rather loosely to designate, (a) cases which appear during or following some effort; (b) those due to direct violence; and (c) those due to some disorder of the muscular mechanism of the groin. The term should be applied to cases in which the hernia appears immediately after violence severe enough to cause a severing of the overlying muscles and protective fascia, if not of the skin.

The majority of herniæ have been designated as "effort" herniæ, which means that they are not the result of one effort alone, but the cumulative effect of repeated efforts, such as lifting, coughing, sneezing, straining at stool, with at some time, perhaps, unknown to the individual, a sudden effort (that in a normal man would be harmless) which converts a partial or incipient or potential hernia into an actual one.

A true "traumatic" hernia should call for compensation if the individual be engaged in work as an employee at the time of injury. On the other hand "effort" hernias are the cause of much trouble in deciding if compensation under the same circumstances should be allowed.

Mock[1], in his article "Compensable Hernia," points out that the English courts prior to the compensation days made the decision that traumatic hernia could occur only from a direct violence resulting in a definite tearing or rupture of the abdominal wall. All other herniæ were considered to be due to congenital defects, and were similar to all other diseases which might occur coincidental with occupation, but not related to it. The decision of the English courts at that time was no doubt arrived at chiefly on their understanding of the etiology of hernia. This entailed an understanding of the anatomy and embryology of the inguinal region. It is my purpose here to review these, so that we may see things perhaps in the same light as did the English courts.

## ANATOMY

The inguinal region is the lateral region of the lower zone of the abdomen. Through it runs the inguinal canal which contains the spermatic cord and the ilio-inguinal nerve in the male, and the round ligament of the uterus and the ilio-inguinal nerve in the female. It is an oblique canal about four cm. long, slanting downwards and medialwards and placed parallel with and a little above the inguinal (Poupart's) ligament. It extends from the abdominal inguinal ring (internal abdominal ring) to the subcutaneous inguinal ring (external abdominal ring). It is bounded posteriorly by the transversalis fascia, extraperitoneal connective tissue, peritoneum, conjoined tendon, and reflected inguinal (Poupart's) ligament; above, by the arched fibres of the obliquus internus and transversus abdominis; below, by the union of the transversalis fascia with the inguinal ligament and at its medial end by the lacunar ligament; in front by the integument, superficial fascia and aponeurosis of the obliquus externus throughout its whole length, and by the obliquus internus in its lateral one-third. The space between the inferior margin of the transversus abdominis and the inguinal ligament is protected by the transversalis fascia, reinforced throughout most of its anterior surface by the conjoined tendon and interfoveolar ligament.

The conjoined tendon of the obliquus internus and transversus is formed mainly by the lower part of the tendon of the transversus and is inserted into the crest of the os pubis and pecten pubis, (ilio-pectineal line), immediately behind the subcutaneous inguinal ring, thus serving to protect what would otherwise be a weak part in the abdominal wall.

The interfoveolar ligament (of Hesselbach) is lateral to the conjoined tendon. It is a ligamentous band, sometimes containing a few muscular fibres, extending from the inferior border of the transversus muscle to blend inferiorly with the inguinal ligament. When well developed, the edge of the conjoined tendon and interfoveolar ligament blend so that no medial inguinal fossa exists. This, with a well developed transversalis fascia, which is usually a strong fibro-aponeurotic layer, is sufficient to retain the viscera within the abdomen. The spermatic cord in the male and the round ligament of the uterus in the female pass through the transversalis fascia at a spot called the abdominal inguinal

ring, (this opening is not visible externally since the transversalis fascia is prolonged on to these structures as the infundibuliform fascia). Passing along the inguinal canal they pass out through an interval in the aponeurosis of the obliquus externus, just above and lateral to the crest of the os pubis. This interval is known as the subcutaneous inguinal ring.

Sir Arthur Keith[2] considers that there are two guards to man's inguinal canal, an inner and an outer. The outer guard consists of that part of the external oblique which arises from the 8th, 9th, and 10th ribs, and ends over the flank on each side of the external ring. With every effort we make, this muscular guard is set reflexly into action and strengthens the outer wall of the inguinal canal. The inner guard consists of the inguinal ligament, conjoined muscle, and that part of the internal oblique and transversalis which, rising from the outer part of Poupart's ligament, passes above the internal ring, to end in the conjoined tendon. When the conjoined muscle contracts it acts as a shutter rather than a sphincter. The lower edge becomes closely approximated to the inguinal ligament, thus closing the inguinal gap. This conjoined muscle frequently has a high origin from Poupart's ligament, is poorly developed, and, instead of consisting of heavy muscular fibres, is replaced by a thinned-out aponeurotic layer, with a short muscular belly, thus leaving a portion of the transversalis fascia with little or no support. It is in these cases that direct herniæ are found.

Inspection of the peritoneal aspect of the inguinal region, when viewed from behind, will show the peritoneum raised in five folds by more or less prominent bands which converge to the umbilicus. The middle umbilical ligament, situated in the middle line, is covered by a fold of peritoneum known as the middle umbilical fold. On either side of this a fold of peritoneum round the obliterated umbilical (hypogastric) artery forms the lateral umbilical fold. To either side of these cords is the inferior epigastric artery covered by the epigastric fold. Between these raised folds are depressions constituting the so-called foveæ. The most medial of these foveæ, situated between the middle and lateral umbilical folds, is known as the supravesical fovea. The intermediary fovea is on the medial side of the epigastric fold and is termed the medial inguinal fovea. The third fovea is lateral to the epigastric fold and is termed the lateral inguinal fovea. The lateral fovea is naturally the deepest of the three. From each fovea a process of peritoneum may be developed; if from the medial inguinal or supravesical fovæ, a hernia of the direct type descends; if from the lateral inguinal foveæ, whose floor corresponds to the abdominal inguinal ring, a hernia of the oblique type descends. Often the obliterated hypogastric artery is represented by a fibrous cord and is seen coursing over the dome of a direct sac, causing the sac to bulge forward on either side of it. Oblique and direct herniæ very often coexist in the same patient, and on the same side. Nearly all large direct herniæ are accompanied by an indirect sac, being separated by the epigastric fold. These are by some called "saddle herniæ," and often the epigastric fold is almost indistinguishable, making it difficult to state whether the hernia started as a direct or an indirect hernia.

## EMBRYOLOGY

In the early human fetus, long before the descent of the testicle has begun, there is found a strand or cord of tissue issuing from the substance of the groin and passing to the scrotum or labium majus. Cleland termed this inguinal strand the gubernacular cord. At the end of the fourth month of fetal life we find a plica of peritoneum running from the epididymis and testis down to the future site of the internal abdominal ring. Within the plica are included bundles of fetal non-striated muscular tissue. In the fifth month this muscular tissue undergoes a peculiar cellular hypertrophy forming the gubernaculum. The gubernaculum assumes a bulbous form, its thickened end being at its testicular extremity. In the latter part of the fifth and throughout the sixth month of fetal life, the peritoneum, and particularly the sub-peritoneal tissue, takes on a peculiar form of growth, evaginating the adjacent abdominal wall, and apparently pushing its way towards the groin. By the seventh month the gubernacular bud and its hood of peritoneum have made their way into the abdominal wall, the testis following. The gubernaculum retains the same length during the act of transit through the belly wall, this part of the process occupying the seventh month. Behind the testis a process of growth is at work, elongating the vas, the vessels and the peritoneum. By the eighth month the gubernaculum bud has traversed the abdominal wall, and by the ninth it and its hood of peritoneum have established themselves in the scrotum. The neck of the peritoneal di-

verticulum lying within the freshly formed inguinal canal is new. It has been specially formed during the period of descent; only the fundus of the diverticulum, the tunica vaginalis, is old. The peritoneal canal becomes obliterated. Sir Arthur Keith states that even in the third month after birth there are still thirty to forty children in every hundred, in whom the upper part of the canal is imperfectly closed.

Hamilton Russel[3] believes that the presence of an abnormal developmental pocket of peritoneum is all that is required to produce a hernia; that practically all herniæ are congenital; that acquired hernia does not exist. In conclusion he states:—

(1) Inguinal hernia in young subjects is caused by the presence of a congenital sac and there is no other cause.

(2) Acquired hernia in the young has no existence in fact.

(3) All cases of oblique hernia, occurring at any time of life, are in subjects who are the possessors of a congenital sac.

(4) Subjects who have never possessed a sac, or who have had the sac effectively removed, can never become the subjects of oblique hernia.

(5) I am unable to find any evidence of any kind in favour of the belief that oblique hernia ever occurs at any age independently of the presence of a congenital sac.

Sir Arthur Keith opposes this view and points out that the processus vaginalis remains open in nearly all animals—man and the gorilla being exceptional in having it closed—and in them congenital inguinal hernias are almost unknown The presence of a developmental pocket of peritoneum cannot be the only factor involved, and is not essential. He holds that without such a pocket a hernia can be produced by the gut forcing its way into the inguinal canal through the shutter-like arrangement which acts as a guard to the inguinal canal. Any strain put upon the muscles forming this guard will cause them to contract reflexly, closing the opening and preventing the protrusion of the gut. Any failure of this contraction will lay the groin open to a hernia. He states that most of the herniæ of infancy take place into the funicular process, a sac of developmental origin, but that, after childhood, the sac and hernia are formed together and simultaneously. Given a weak point in the abdominal wall, there can be no doubt that the intermittent and repeated forces which are generated within the abdomen of every man and child are sufficient to protrude that weak but living and plastic area in the form of a hernial sac.

## LEGAL VIEWS ON HERNIA

Evidence such as this would make one feel that the English courts were right in their decision, and because of such a decision at that time, few claims for traumatic hernia were made. Since then things have changed, and at present practically every case of hernia occurring while an employee is at work is the basis of a claim for compensation. This condition was brought about by broad-minded employers recognizing a certain moral obligation and realizing that any improvement in the condition of the employee rendered him more useful. They were little concerned whether there was such a thing as "traumatic hernia" for which they could be held legally responsible. If an accident occurred, even though these employers were not legally responsible, they felt that a moral responsibility was attached, and compensation and free surgical care were given. If they employed a man with a hernia they knew the industry was not responsible for it. If it grew gradually worse without any cause, again they were not responsible. But if, as a result of an accident or severe strain, the hernia became strangulated, at once doubt as to responsibility entered the case, and the decision was rendered in favour of the employee. If they hired a man who showed no sign of rupture at the employment examination, but later suffered an accident or severe occupational strain, and as a result hernia appeared, compensation and free surgical care were given because in the man's mind the accident caused the trouble. Such, says Mock, was the attitude of several concerns at the time of the passage of the Employee's Compensation Act. In fact these very laws were an expression of the new humane influence which had entered industry. The administration of these Acts was placed in the hands of industrial commissioners whose members were laymen rather than lawyers. Influenced by the generous attitude of certain industries, and guided by sentiment and a consideration of moral rights, combined with their meagre legal knowledge, the decision of these various commissions were often at variance with those rendered by the courts in the past. Thus, employees began to seek compensation for many conditions which heretofore had not been considered compensable, and included among them were herniæ which developed during employment.

Had the industrial world been of the same attitude as mentioned by Mock at the time of the passing of the first Compensation Act, no diffi-

culty would have been met in dealing with herniæ which became apparent while the employee was at work, but all were not of the same opinion, and for this reason many cases are left to the Courts, aided by orthodox and unorthodox medical evidence, to place the responsibility.

Under the present system in our courts, where the medical evidence, as heard by a judge and jury is always contradictory, and where one medical man's evidence bears as much weight as another, no matter whether he be a surgeon of vast experience, or a general practitioner with no surgical experience, great injustice may be done either employee or employer. In this respect it is felt that if the courts were to use the testimony of experts of the court's selection, and not of the selection of the claimant or defendant, greater justice would be rendered all concerned.

The term "traumatic hernia" should be confined to those cases which are the result of violence and show definite signs, or give definite symptoms, within the first twenty-four hours after injury. The others, which are included under the general name of traumatic hernia, are called by the German writers "accidental hernia." Patterson gives the following signs and symptoms as indicative of a traumatic hernia.

(1) Immediate descent of the hernia following the alleged injury or strain.

(2) Severe pain in the region at the time and following the injury, severe enough to require medical aid within the first twenty-four hours.

(3) Severe prostration, causing the employee to cease work immediately.

(4) Symptoms of such severity that they were noticed by the claimant and communicated to the employer within twenty-four hours after the occurrence.

(5) The trauma or strain must be adequate.

He felt that if two or more of the criteria are lacking, a case cannot be justly maintained to be of traumatic origin.

Mock advocates that the term "compensable hernia" be adopted to include all cases of true traumatic hernia, and all cases of accidental hernia, in which the force causing their development is directly the result of some unnatural occupational hazard. In favour of the hernia being due to "unnatural causes" we have the following.—

(1) Definite proof that the hernia did not exist previously. As the burden of proof of a pre-existing hernia rests with the employer, a physical examination of all applicants for positions in industry, no matter in what capacity, should be made.

(2) A definite history of an accident; or if hernia occurred coincidentally with strain or a severe effort far in excess of that which the man's muscular developmental stature or past experience in the occupation should call for. Such factors would compose the unnatural occupational hazards, as opposed to the natural strain of his ordinary work.

(3) The appearance of a hernia immediately or very shortly after the occurrence of one of these unnatural exciting causes.

(4) The examination of the hernia revealing that it is of small size, seldom as large as an egg, and usually within the canal or just appearing at the external opening.

(5) At operation the peritoneal sac is small, thin, and seldom protrudes throughout the entire length of the canal. Adhesions of the mesentery or viscera to the sac are never present.

In favour of the hernia being due to natural causes are the following:

(1) History or knowledge of a hernia already existing.

(2) History of hernia in childhood, which was apparently cured by a truss and has not been present for several years.

(3) Presence of hernia at some other abdominal orifice, showing a tendency towards this condition.

(4) Weakness of the structures forming the walls of the inguinal canal.

(5) A family history of hernia is a strong etiological factor in favour of the employee being congenitally predisposed to the condition.

(6) The age of the patient is an important factor in determining the natural or unnatural cause of the hernia.

(7) Other etiological factors, such as recent debilitating diseases.

(8) Certain conditions found during examination of the hernia which indicate that it was due to natural causes. For example a large hernia indicates its pre-existence; a discoloration or deep depression of the skin over the hernia indicates that a truss has been worn, and that therefore a hernia must have existed.

(9) The condition found at the time of operation will often indicate that the hernia was of long standing and therefore not due to the alleged injury; for instance, a thickened well formed sac,

adherent mesentery or intestine within the sac, and heavy fibrous bands in the hernial sac.

From this it would seem that true "traumatic" hernia occurs rarely if at all and that the majority of herniæ that come before our courts or commissions for decision are really "effort" herniæ. All of these then, or almost all of them are of gradual production. Repetition day by day of straining at stool, stooping, lifting, coughing, and all other bodily movements force the semi-fluid abdominal contents against their containing walls, and gradually cause evagination of the weakest points of the abdominal wall; then the sudden effort, which in a normal man would be harmless, turns a partial or potential hernia into a larger one.

If the courts or commissions are to disregard gradual production and decide that this last effort, great or small, is the cause of the man's hernia, and compensation be given, then all employees with partial or potential hernias are financial risks to their employers, a risk which would not be taken should the employer know of it; also those persons with an established hernia would not be eligible for any kind of employment, because of the fact that the gradual production as mentioned is going on and increases the size of the hernia, and at any time he could make a claim for aggravation.

It would therefore seem that the English courts were right in their decision made prior to the days of compensation.

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## A CONSERVATIVE METHOD OF THE CONTROL OF UTERINE HÆMORRHAGE BY X-RAY

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UTERINE hæmorrhage is always an alarming condition whenever it is encountered and should be an indication for an immediate investigation as to its cause. Such bleeding may be caused by a great variety of conditions, but this discussion is limited to a type of case which shows very little if any gross evidence of disease. These limitations have been imposed because in the selection of cases for treatment by x-ray it is obviously unwise to include any case where the indications are clear-cut for surgical measures, such as the presence of large multiple fibroids, and again it is unwise to invade a field better served by radium, which field includes carcinoma of the cervix.

The group of cases here reported includes women from fourteen to fifty-nine years, married and single; all presented as their chief symptom menorrhagia and many also metrorrhagia. The majority showed no evidence of gross abnormality on pelvic examination. A few cases which will be noted had small fibroids. Many cases with other complications have been treated by us with varying degrees of success. Some spectacular results have been achieved; some have been most discouraging. Many such complicated cases have therefore been eliminated from this series, so as to present a description of a patient with a clinical entity which, when recognized, may with safety and assurance be referred to the radiologist for treatment.

The women treated not only were bleeding, but were bleeding severely. All of them had had some previous treatment, varying from rest in bed to repeated curettage; some were dangerously anæmic; and one woman was practically exsanguinated, to such a degree that a blood transfusion did not improve her to a point where she would be acceptable as a surgical risk.

At the beginning of the series five years ago, the cases came to us either because they refused a suggested hysterectomy, or because the general condition was not sufficiently good to allow a good prognosis following the shock of a major pelvic operation. In the last few years, our clinical group has recognized suitable cases and more promptly referred them to us.

The members of this group may be arbitrarily divided into three classes: (1) the very young

XUM

girl who has but lately established her menstrual cycle and who develops an alarming menorrhagia; (2) the woman of childbearing age, whether parous or not, who complains of excessive bleeding at or between her periods, often accompanied by dysmenorrhœa; (3) the older woman at or near the menopause, whose profuse bleeding is alarming to such a degree that an artificial menopause, quickly produced, is considered advisable.

The treatment in each class is bound to vary according to circumstances and perhaps this may be best shown by quoting illustrative case reports.

CLASS 1

A girl of 14 referred with a history of severe bleeding at each period for a year, in fact from the date of first menstruation. She was pale (hæmoglobin 30 per cent), confined to bed, appetite poor, sleeping poorly. It was necessary here to do two things. (1) To arrest as soon as possible the bleeding which had made an invalid of this child, and (2) to preserve her menstrual function. Therefore, she was given an x-ray treatment over the pelvis anteriorly with the following factors: 5 milliamperes, 200 peak kilovolts, 50 centimetres distance, one millimetre of copper plus one millimetre aluminium filter, ten minutes exposure. The following day the same dose was administered over the posterior pelvis. This was repeated in four weeks. In the meantime she continued in bed. At the end of three months this child was up and about. Her hæmoglobin was 70 per cent and her menstrual flow was normal in amount with a three day flow.

CLASS 2

(a). A young married woman, of 29, with menorrhagia and metrorrhagia; two healthy children; has had an unsuccessful curettage. There was no gross disease in the pelvis; no obstetrical tears. She was unable to walk; bleeding continually. Hæmoglobin was 25 per cent. She was so ill that she expressed indifference as to the possibility of future pregnancies. She was given an anterior and posterior pair of exposures as above, except that the time was doubled; another pair at the end of four weeks, and a final treatment at the end of eight weeks. Her bleeding ceased at the end of eight weeks and she was amenstrual for six months. After that her menstrual cycle became normal. Her hæmoglobin reached 85 per cent and she gained thirty-five pounds in four months. There have been no pregnancies since the treatment.

(b). A married woman of 37, with pulmonary tuberculosis and severe uterine bleeding, and with such severe anæmia that she already showed cord symptoms. She was given four pairs of treatments at intervals of four weeks. Her bleeding ceased at the end of the fourth month, and she has not menstruated since. Subsequently, her general condition has very much improved and the chest condition is quiescent.

CLASS 3

(a). A spinster of 41, with menorrhagia and metrorrhagia for three years, bleeding for last twelve weeks steadily; curettage six months ago with no relief. A pelvic examination was negative. It was decided to precipitate the menopause. Three pairs of treatments were given at intervals of four weeks with complete cessation of flow and a gain of twenty pounds, and with none of the discomfort of an ordinary change of life.

(b). A married woman of 43 with no children, menorrhagia for five years off and on. Lately she has bled steadily. She was very irritable, anæmic, bedridden, a very difficult invalid. Pelvic examination showed a small fibroid but nothing else of note. To bring on an artificial menopause it was necessary to give her four pairs of treatments at intervals of four weeks. She still has regular menstruations of one day duration, some hot flushes, and occasional headaches, but she is doing her own housework and has gained weight.

Thirty-eight case reports are here reviewed. The reports quoted have been completed for at least two years. There have been no failures, in spite of the fact that three women did not receive the full prescribed dosage. These three were so much improved that they refused the final treatments. They were public patients and it is a noteworthy fact that free patients are more difficult to control than paying clients. Not all, but a majority, of the women suffered slight roentgen sickness, which in no case was severe. It is desirable that these patients should spend the first month in bed and have as much rest as possible until the bleeding is controlled. There is no necessity for medication other than to give good food, provide plenty of sleep and fresh air and perhaps a tonic of iron.

The production of artificial menopause by x-ray is safe, rapid and satisfactory to the patient, because in most cases the unpleasant features of the menopause are cut short, if not obviated. X-ray control of uterine hæmorrhage in women of the childbearing age must be advised and prescribed carefully with reference to the possibility and desirability of future pregnancies, but in all our cases this was secondary to the necessity of preserving the life of the patient. Nevertheless, by judicious estimation of dosage, menstruation was preserved. This result has a decidedly good psychological effect if nothing else. It is in the treatment of the menorrhagia of very young girls that the radiologist finds his greatest problem, for such children have a long expectation of life and any interference with their menstrual functions may entirely discolour their outlook on life. Therefore, dosage must be cut down to the minimum and treatment stopped at the earliest sign of arrest. In our cases to date, only one pregnancy has been reported following x-ray therapy of the pelvic organs, and this was interrupted at five months due to extensive kidney damage.

# POST-OPERATIVE VOMITING: ITS CONTROL BY INTERSTITIAL INJECTIONS*

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POST-OPERATIVE vomiting, dreaded by the patient and often a worry to the surgeon, is a condition which is not considered seriously enough by many men who do operative work. Treatment directed toward the control of vomiting ought to be as much a part of the total surgical routine as the giving of morphine to relieve pain. This does not appear to be the case.

Dolan[1] discusses the value of glucose, given intravenously, using insulin in sufficient amounts, as a treatment for severe and often uncontrollable post-operative vomiting. The thought comes to one, since this treatment works in pernicious vomiting, why not institute it earlier before the vomiting becomes severe, or even before it has started at all? Intravenous therapy of this kind requires the determination of the blood sugar, the $CO_2$ tension, etc., and the procedure becomes rather too technical for the average man to engage in.

For a number of years it has been a routine practice with us to give every patient who has undergone a major operation an interstitial injection of saline, Ringer's formula, or a combination of Ringer's saline with a 5 per cent solution of dextrose in equal proportions. The value of this therapy was impressed upon us by its application in Crile's clinic at Cleveland. We also make use of Bartlett's method of adding novocaine solution to the interstitial saline in order to make the administration painless.

The routine giving of 1,000 to 1,500 c.c. of one of the above solutions after each major operation appears to be a method of satisfactorily disposing of the problem of post-operative vomiting. At least, we do not appear to have a more efficient one at the present time. Furthermore, when the patient gets the solutions early, before marked blood changes have taken place, it does not require that technical knowledge which is necessary for making intravenous therapy safe.

Briefly, the technique of the post-operative interstitial therapy as practised in the Lamont Public Hospital is as follows. As soon as the patient has returned to his bed he is given into the lateral aspects of the thighs 1,000 to 1,500 c.c. of solution, to which has been added 30 c.c. of a 1 per cent solution of novocaine per litre of fluid given. If the needles are inserted so that the solution will run the amount is taken in an hour or less, and is painless then and afterwards. Chemically pure dextrose is used, and the Ringer's tablets are made up for us by Parke, Davis and Company, in such a size that one tablet with sufficient distilled water to make 100 c.c. gives an isotonic solution. The above is a well-established treatment in many places over this continent, but it is not used so often as it should be in hospitals where surgical work is done. This technique is more fully described in an article on "Mortality in appendicitis", published in this *Journal*.[2]

Regarding any treatment which one would wish were universal, three questions are bound to arise. What is its value, what is the risk, and is it difficult to administer?

As to its value; interstitial therapy greatly diminishes post-operative vomiting, lessens nausea to a similar degree, relieves the patient of the intense craving for water, reduces the incidence of post-operative distension, and almost does away with the need of catheterization. In addition, it supplies the drained tissues with fluid, and makes up for that which has been lost during the operation.

A small series of non-operative patients and a similar series of operative patients were given the same amount of fluid from seven o'clock in the morning to seven o'clock in the evening; the former by mouth, the latter by interstitial injection and by mouth if they wished. It is interesting to note that the operative cases

* Read before the Alberta Medical Association, Edmonton, September, 1928.

retained from 200 to 500 c.c. more of the fluid during this twelve hours than did the non-operative. Might it be suggested that these patients need this amount of water, and if they do not get it by interstitial injection there is no other certain way of giving it whereby one is sure that it will be retained except by the intravenous route?

Lahey[3] and Crile and Higgins[4] stress the need of fluid in the operative patient. The giving of fluids by means of the Murphy drip, though excellent in many cases, very often fails in that case in which it should function, and the very sick patient expels his drip, thereby receiving no benefit. It is in this type of case that the interstitial form of administration demonstrates its usefulness.

There appears to be no risk if ordinary care is observed and asepsis employed. It is hardly necessary to add that the solutions ought to be of the proper strength, temperature, etc. In 1,200 cases in our hospital in which this procedure was adopted we have had three local infections, each one following the addition of a new interne to the staff, suggesting a slip in technique. There have been no other complications. Considering the immense amount of relief afforded to the patient even the above unfortunate occurrences hardly constitute a risk.

The giving of the interstitial injection, as every one knows, is a simple procedure. A nurse may give it, but we prefer a doctor to take the responsibility. The use of the novocaine makes it possible to give an interstitial injection at any time without any discomfort to the patient and it is often used apart from operations when a patient needs fluids urgently.

In view of our experience with this number of cases, the pleasing results, and the relief to each patient, we would recommend the adoption of this interstitial therapy for all major operations, as a measure adopted in the best interests of that uncomfortable individual, the post-operative patient.

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## AN UNUSUAL CASE OF DIABETES AND GOUT*

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THIS case of gout and diabetes is reported because of (*a*) the debatable causal relationship between gout and diabetes; (*b*) the anomalous influence of the insulin administered upon the course of the gout; and (*c*) the results of synthalin treatment.

A male, (Hospital No. 1128-27), aged 50 years, was admitted to the Montreal General Hospital, March 2nd, with a history of "thirst, dry mouth, frequent urination and weakness."

He was born in Montreal, had measles and diphtheria in childhood, pneumonia in 1915 and typhoid fever in 1917. He stated that for the last ten years he had been suffering from gout, and during that period had been confined to bed at least five or six times a year. The duration of these attacks varied between two and ten days. At each attack potassium iodine and colchicum or atophan treatment resulted in relief. He had been accustomed to drinking about two or three pints of stout each day.

There was no family history of diabetes. His father also suffered from gout and died at the age of sixty-nine from "anæmia;" and one brother, who is alive and otherwise well, has frequent attacks of gout.

The history dated back to February 15, 1927. At that time he was free from any attacks of gout for about one year and, for the first time, noticed excessive thirst, and his mouth "became very dry." Accompanying this thirst there was increased frequency of urination. He stated, however, that, though his appetite was always good, he believed it had increased a few weeks prior to the onset of the thirst. He also said that for three months prior to February he did not feel as strong as usual.

That the diabetes dated farther back than the

*From the Department of Metabolism, The Montreal General Hospital, Montreal.

above history indicates is suggested from the laboratory findings of February, 1926. At that time he received hospital treatment for an attack of gout, and the laboratory records show a fasting blood sugar of 0.13 per cent. The urine contained no sugar. There is nothing in the records to suggest that the mild hyperglycæmia might have been due to defective kidney excretion. The urine contained no albumen; the blood urea nitrogen was 18.5 mgm. per 100 c.c.; and the creatinine was 1.4 mgm. per 100 c.c. At that date there were no other clinical conditions to account for the hyperglycæmia. On February 28, 1927 he consulted Dr. D. Grant Campbell, who during his routine examination discovered sugar and acetone in the urine and advised hospital treatment.

Briefly, the findings of the physical examination on admission, were as follows: There was slight emaciation and an acetone odour to the breath. The lungs were negative. There was a slight degree of hypertension (140/82), and cardiac hypertrophy. The transverse dullness of the heart extended from a point 1 cm. to the right of the mid-sternal line to 10.5 cm. to the left of the same, at the level of the third rib. Both patellar reflexes were absent; the other reflexes were normal.

Both hands showed enlarged interphalangeal joints and the great toe of the left foot was markedly enlarged. There was also some deformity of all of the metatarso-phalangeal joints of the same foot.

The following were the results of the routine laboratory tests:—

The urine was clear and pale; specific gravity, 1036; reaction acid; sugar, plus; acetone and diacetic acid, plus; albumen, a trace; a few hyaline casts were present. The blood: red cell count, 4,210,000 per c.mm.; white cell count, 8,100 per c.m.m.; hæmoglobin, 82 per cent; urea nitrogen, 21 mgm. per 100 c.c.; creatinine, 1.45 mgm. per 100 c.c.; uric acid, 9.10 mgm. per 100 c.c.

On March 3rd, in the fasting state, the blood sugar was 0.277 per cent and the plasma cholesterol was 0.284 per cent. The twelve-hour specimen of urine (8 p.m. to 8 a.m.) showed a volume of 1250 c.c. and contained 15 grm. of sugar. Both acetone and diacetic acid were present, and the total acids corresponded to 820 c.c. of deci-normal (titratable acid plus ammonia).

### PROGRESS

In spite of a diet much below the caloric requirements, the urine still contained sugar and acetone bodies five days after the patient's admission to the hospital, though the blood sugar had fallen from 0.277 per cent to 0.175 per cent. Insulin treatment was then commenced. On March 7, he was given ten units of insulin and the following day the urine was free of sugar and the amount of acetone bodies had decreased. The next day (March 9), the blood sugar was 0.147 per cent.

On March 10, the patient complained of a sharp pain in the left foot, involving the great toe and metatarsal region. The toe was then found to be red, hot and tender, with the typical gouty appearance. At that time he attributed the attack of gout to the insulin. Little attention was, however, paid to this possibility at the time. He was given atophan treatment, and by March 19 all acute signs, both subjective and objective, had disappeared, with the exception of "a little pain in the toe." With the attack of gout there was some disturbance in the course of the diabetes, in that glycosuria and acetonuria reappeared, and it was necessary to increase the dose of insulin to thirty-five units. Twenty units were given in the morning before breakfast, and fifteen in the evening before dinner. In a short time, however, with the disappearance of the acute symptoms of the gout, it was possible to reduce the dose and, on discharge from the hospital, on March 26, the urine was free of sugar and contained no acetone bodies. The blood sugar was normal (0.118 per cent). The plasma cholesterol was 0.194 per cent and the uric acid was 3.63 mgm. per 100 c.c. of blood. He was then tolerating a diet of 50 grm. of carbohydrates, 150 grm. of fat, and 50 grm. of protein on fifteen units of insulin a day, taking ten in the morning and five in the evening. He weighed 126 lbs. There was still some pain in the affected toe. At that time the patient, a very intelligent individual, remarked that this was the first attack during which the pain had continued for so long a time.

He was again seen on April 27, and gave the following history*:—

Until April 21, he took the same doses of insulin as on discharge from the hospital, namely, ten units in the morning and five at night, *but not daily*. The pain in the toe had not disappeared and, since the progress of the gout differed from all previous attacks, he again considered the possibility that it was due to the insulin. Insulin was, therefore, discontinued about three days a

*Importance was attached to this history because of the intellectual capacity of the patient, his knowledge of his diet, and recognition of the part that it played in the control of his diabetes, and his co-operation.

week. He then noticed on the days that he was receiving no insulin, he was free of pain. In order, however, to keep the urine sugar free he, without instructions, reduced his diet, and was living on approximately 25 grm. of carbohydrates, 80 grm. of fat and 30 grm. of protein per day.

On April 27, the urine was sugar free and contained no acetone bodies. The blood sugar was on the border-line of hyperglycæmia, namely, 0.128 per cent. The cholesterol was 0.250 per cent and the uric acid was 7.50 mgm. per 100 c.c.

Since his discharge from the hospital (March 26), colchicum and atophan both were of little value in controlling the residual pain. His weight was now 116 lb. On the low caloric diet he lost 10 lb. On April 29, his diet was increased and it was suggested to him that he take small doses (5 units) of insulin daily. With this the pain became very acute the following day. Insulin was then discontinued. In order, then, to keep the urine sugar-free, he was given the dietary treatment of pre-insulin days, that is, one in which both the carbohydrate and caloric contents were gradually increased. Notes of farther progress are recorded in the accompanying table.

TABLE

| *Date* | *Blood Sugar Per Cent* | *Urine Sugar* | *Urine Acetone* | *Plasma Cholesterol* | *Blood Uric Acid mgm. per 100 c.c.* | *Remarks* |
|---|---|---|---|---|---|---|
| Mar. 26, 1927 | 0.118 | 0 | 0 | 0.194 | 3.63 | Discharged from hospital. Diet C=50, F=150, P=50. Weight=126. Insulin, 10-0-5. |
| Apr. 27, | 0.128 | 0 | tr. | 0.250 | 7.50 | Diet C=25, F=80, P=30. Weight, 116.0. No insulin. |
| May 5, | 0.111 | 0 | + | | 6.66 | Weight, 118.8. No insulin. |
| May 14, | 0.098 | 0 | + | 0.262 | 5.71 | Weight, 117.7. No insulin. |
| May 15, | | | | | | Diet C=50, F=150, P=50. |
| May 21, | 0.166 | 0 | tr. | | 5.92 | Weight, 117.7. No insulin. |
| June 4, | 0.186 | 0 | tr. | | 5.42 | Weight, 116.6. No insulin. |
| June 5, | | | | | | To take 25 mgm. synthalin every second day. |
| June 11, | 0.140 | 0 | 0 | | 4.63 | Had diarrhœa and cramps during week. van den Bergh=negative. Urobilinogen: less than one in ten dilution. |
| June 18, | 0.129 | 0 | 0 | | 5.74 | No cramps all week. Weight, 118.8. |
| June 25, | 0.125 | 0 | 0 | 0.333 | 4.90 | No cramps all week. Weight, 119.0. |
| July 15, | 0.135 | 0 | 0 | 0.286 | | |
| Aug. 13, | 0.111 | 0 | 0 | 0.250 | 9.30 | |
| Sept. 10, | 0.145 | 0 | 0 | 0.333 | 10.00 | No supply of synthalin since Sept. 9, 1927. Weight, 121.8. |
| Oct. 1, | 0.108 | 0 | 0 | | 8.08 | Synthalin since Sept. 11, 1927. Weight, 121.0. |
| Nov. 5, | 0.143 | 0 | 0 | 0.286 | 6.32 | No supply of synthalin since Oct. 30, 1927. Weight, 121.0. |
| Nov. 26, | 0.178 | 0 | 0 | | 7.84 | Synthalin since Nov. 6, 1927. Suggestion of gout. Weight, 123.0. |
| Dec. 31, | 0.200 | tr. | 0 | 0.300 | 6.82 | No synthalin since Dec. 24, 1927. |
| Jan. 14, 1928 | 0.143 | 0 | 0 | 0.333 | 7.14 | Neosynthalin 10 mgm. daily since Jan. 1, 1928. Weight, 125.4. |
| Feb. 4, | 0.119 | 0 | 0 | | 6.15 | Weight, 124.5. |
| Mar. 10, | 0.140 | 0 | 0 | 0.350 | | Weight, 124. |
| Apr. 21, | 0.108 | 0 | 0 | | | Weight, 125½. |
| July 21, | 0.133 | 0 | 0 | 0.325 | 8.00 | Weight, 120. |
| Sept. 1, | 0.119 | 0 | 0 | 0.333 | 6.65 | Weight, 120. |

It will be seen that on May 5 the urine was sugar-free, but contained traces of acetone bodies and the blood sugar was normal (0.111 per cent). The uric acid was 6.66 mgm. per 100 c.c. He was seen again on May 14 and, at that time, conditions were practically the same as those on May 5. The blood sugar was 0.098 per cent. His weight, however, was only 117 lb. and, though he was free of gouty pains, he had the appearance of a diabetic of the pre-insulin days. The plasma cholesterol was 0.262 per cent.

Since the blood sugar was normal, he was given a diet consisting of 50 grm. of carbohydrates, 150 grm. of fat and 50 grm. of protein. This was consistent with his requirements. One week later, on May 21, though the urine was still sugar-free, the blood sugar was 0.166 per cent. The rise in the blood sugar suggested that the diabetes could not be kept in an ideal state of control without insulin. On June 4 this became more apparent, since the blood sugar had risen to 0.186 per cent, though the urine was still sugar-free. The uric acid was 5.42 mgm. per 100 c.c. An attempt was then made to use synthalin. The experimental nature, and probable failure, of this treatment was explained to the patient and he offered his co-operation.

He was given 25 mgm. of synthalin every second day and on June 11, his weight was 119 lb., and the urine was sugar-free and had remained so all of the previous week. The uric acid was 4.63 mgm. per 100 c.c. and the blood sugar was 0.140 per cent. He stated that he had diarrhœa on two occasions during the week and that he had mild cramps. Because of the latter complaints a van den Bergh test was performed on the blood and the urine urobilinogen was estimated. Neither showed evidence of liver damage. He was warned about the possibility of these symptoms, but did not think they were bad enough to discontinue the use of the tablets, because he was "in the hope that they might do good." On June 18, one week later, the blood sugar was 0.129 per cent and the uric acid 5.74 mgm. per 100 c.c. He was still taking 25 mgm. of synthalin every second day. On June 25, the blood sugar was practically normal (0.125 per cent); the cholesterol was 0.333 per cent; the uric acid was 4.90 mgm. per 100 c.c. and the urine was sugar-free. On July 25 and August 13 the blood sugars were 0.135 per cent and 0.111 per cent, respectively, and there was nothing relevant to report during these visits. It will be noted that the plasma cholesterols were high on both occasions. During the last visit he stated that he had no gastro-intestinal upsets since those complained of on June 11. He returned again on September 10, feeling well and looking well, and stated that he had had no supply of synthalin for the previous day. The urine was sugar-free, but the blood sugar was 0.145 per cent and the plasma cholesterol was 0.333 per cent. At that time he weighed about 122 lb., and stated that he felt better than before he had his diabetes. He was given more synthalin. On October 1, 1927, the blood sugar was 0.108 per cent and the other findings were irrelevant. On November 5, he returned and stated that he had had no synthalin supply since October 30, and he also said that he had not felt so well for five years. The blood sugar at this time was 0.143 per cent. The plasma cholesterol was 0.286 per cent. On December 31, he again returned because he had had no synthalin since December 24. The blood sugar was then 0.200 per cent. He was given neosynthalin and told to take 10 mgm. per day, and has done so since. The subsequent findings to date are recorded in the table above. It will be seen that, except on two occasions (January 14 and March 10, 1928), the blood sugars were normal.

It will thus be observed that, for about fifteen months, the diabetes has been kept under control with the use of synthalin. That the synthalin was essential may be observed from the history of the diabetes while he was in the hospital, and the fact that, on the days when he returned for further supplies with a history of having had none for some days previously, the blood sugars had definitely increased.

### COMMENT

Of the two other diabetics in our clinic with gout, in one case the diabetes is mild, and in the second case insulin is necessary. In the latter case, insulin, though given in much larger doses, and over longer periods of time, has not precipitated any attacks of gout. This patient, unlike the one described here, has no albuminuria. That insulin was the exciting factor in precipitating the attacks of gout in the case reported appears to be definitely proved, for when it was discontinued the pain would subside, and when it was given the pain reappeared. The explanation of this phenomenon is rather difficult. In view, however, of the observation that insulin produces œdema of the body tissues in some diabetics, and in view of the albuminuria and also of the recent observations of Folin, Berglund

and Derick[1], in their experimental study of gout, it is suggested that the œdema produced by the insulin does not escape the kidneys, and this may be responsible for the attacks of gout.


## SUMMARY

A case of diabetes and gout is reported. It was found that insulin precipitated attacks of gout. Unfortunately, it was also found that the diabetes was sufficiently severe to require insulin; that without the latter, and on a diet compatible with the normal requirements, it was not possible to keep the urine sugar-free and the blood sugar normal. Because of this, synthalin treatment was attempted. For a very short period the results were discouraging, in that cramps and diarrhœa appeared. At that time, however, there was no evidence of liver damage. The van den Bergh test was negative and there was no excess of urobilinogen in the urine. For this reason, and also because of the patient's co-operation, it was considered advisable to continue the attempt. The results were successful and continue to be so. For more than fifteen months the urine has been kept sugar-free and the blood sugar practically normal without the use of insulin.

A disturbing feature is the persistence of a high plasma cholesterol. It will be noted that, *unlike insulin, synthalin has had no effect on the metabolism of this lipoid.* As a matter of fact, the cholesterol is now higher than when the patient was first admitted to the hospital.

That the condition is an anomalous one is suggested from the fact that one other diabetic with gout, who has been receiving much larger doses of insulin, and over a much longer period of time, does not present the same complication. A possible explanation of this condition is suggested.


## RELATIONSHIP BETWEEN GOUT AND DIABETES

No definite causal relationship has, as yet, been proved. The literature records opposing views. Von Noorden[2] believes in a definite relationship between the two diseases and quotes in addition to his own experience those of noted English and French writers. He states, however, that severe gout, that is, with skin and joint changes, is comparatively rare; only twelve cases have been found in a series of 6,000 diabetics. Helmut Seckel[3], recording the experience in Umber's clinic, also believes in the association of the two diseases. On the other hand, Joslin[4], with his large experience, states gout has occurred so seldom amongst his cases that he attaches little importance to it. Brigham* of Boston writes me that he has not met with a case of gout in his clinic of about 1,000 diabetics. Woodyatt*, Allen* and Campbell* of Toronto, also state they have not met with this phenomenon. In view of the greater incidence of gout in England than on this continent, it is of interest to note that neither Lawrence* nor Harrison* have met with such cases. On the other hand, Graham* has seen two. In our clinic, the case reported here is the third met with. In each the gout was severe. The incidence, therefore, corresponds approximately with that recorded by von Noorden. In the view of the latter, it would appear that there is a causal relationship between the two diseases. It can be shown, by applying calculations based upon the "probability of concurrent events," that there are in our clinic more cases than would be expected from the operation of the laws of chance only. Thus, amongst the last fifty thousand admissions to the Montreal General Hospital, there were twenty-six cases of gout, fourteen hundred and fifty-nine cases of diabetes, and three cases of diabetes and gout combined. Therefore, the probability ($p_1$) of an individual coming to our hospital having gout was $\frac{26}{50000}$. The probability ($p_2$) of an individual having diabetes was $\frac{1459}{50000}$. The probable incidence ($p_3$) of gout and diabetes combined was, therefore, ($p_1 \times p_2$) $50{,}000 = 0.75$. Since three of such individuals were found, the incidence was $\frac{3}{0.75}$, or about four times as great as would be expected from the operation of chance only.

Osler's textbook of medicine (10th edition) is noncommittal on this point. The statement is made that "metabolism disturbances in gout may be associated with glycosuria." It will, therefore, be seen that the causal relationship between the two diseases is still debatable.

Grateful acknowledgement is due Dr. D. Grant Campbell for his co-operation and the Eli Lilly Company for the continuous supply of synthalin and neo-synthalin *gratis* since it was first prepared.

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*Personal communication.

# THE SURGICAL GOITRE*

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IN presenting this paper I do not lay claim to any original experimental work, but rather wish to bring to your attention the modern conception of what is called toxic goitre, or hyperthyroidism, laying special stress on its surgical aspect. A great deal has been written during the past few years on this subject, and rightly so, for the treatment of this serious condition has become, or should be by now, fairly well standardized. Most important of all, the preliminary preparations of those that go to operation has of recent times been completely revolutionized, and this, together with the post-operative care, has reduced the mortality rate to within reasonable limits.

The handling of this interesting condition, from the time of the original consultation to the discharge, calls for great patience, sympathy, and understanding. One should take great pains to gain the complete confidence of the patient. A quiet and undisturbed atmosphere is absolutely essential. The patient should have complete confidence that everything is going to come out all right. This state of mind is of course desirable in any pathological condition, but is most essential in hyperthyroidism. To this end there should be the strictest co-operation amongst all those connected with the case. This is particularly desirable at the time of operation. It is not pleasing to see a patient coming into the operating room with those prominent staring eyes, taking in all the details of gowned and masked figures; terrible looking instruments strewn about, and strange objects everywhere, together with a bright and glaring light. It is such a simple thing to cover the eyes and with a few reassuring words convey the patient to a room which is quiet and restful. It only requires a little thought and attention to detail to accomplish this, and the results obtained are gratifying.

Plummer's classification of thyroid enlargement, in which nine varieties are enumerated, is well known. For practical purposes however Jackson's classification, which follows, is to be preferred:

(1) Colloid goitre; (2) Adenomatous (simple and toxic), sometimes referred to as nodular goitre; (3) Exophthalmic goitre.

As the title of this paper is "The Surgical Goitre" we need spend little time in the discussion of the colloid type. This form of goitre calls for surgery only for the relief of pressure symptoms.

The adenomatous and exophthalmic forms are surgical. The simple adenoma should be operated upon because in about 50 per cent of cases it will become toxic before the age of forty-five. The adenoma with hyperthyroidism demands surgical intervention because of the cardiovascular damage which it causes. In the light of our present knowledge surgical interference offers by far the best results in the treatment of the hyperplastic or exophthalmic goitre. A short discussion of these different types may be of interest.

An adenoma usually develops in a neglected colloid goitre. It is an attempt on the part of the gland to produce an increased amount of thyroxin. The adenomatous goitre is irregularly enlarged.

In the toxic adenoma the onset of symptoms is more gradual and less severe than in exophthalmic goitre. There is usually the history that a goitre has been present for years. The symptoms are nervousness, palpitation, tremor, moist warm skin, and loss of weight which becomes rapid when the hyperthyroidism has become established. Pressure symptoms depend on the size and position of the adenoma. Cardio-vascular derangements are present as a result of the continued toxicity. The heart is usually enlarged. Auricular fibrillation and myocardial degeneration are fairly common. The pulse pressure is increased. The basal metabolic rate is not so high as in

* Presented during the extra-mural course conducted recently in British Columbia.

exophthalmic goitre, rarely being above + 60.

In contrast to the insidious onset of the toxic adenoma, exophthalmic goitre develops very rapidly. There may or may not be evident enlargement of the thyroid gland. It usually occurs between the ages of 18 and 25, but is by no means limited to these ages. It progresses in waves, with periods of exacerbation and remission of symptoms. These symptoms are tachycardia, nervousness, irritability, emotionalism, exopthalmos, restless movements, fine tremor, heat tolerance, moist skin, and excessive perspiration, dyspnœa, insomnia, loss of strength particularly in the quadriceps, loss of weight, sometimes associated with an increase in appetite. Exophthalmos does not appear at the onset. Gastro-intestinal disturbances do not occur until the disease is well established. Cardiac bruits are frequently present and there is a high pulse pressure. The heart may be enlarged. The basal metabolic rate is usually higher than in toxic adenoma.

On examining suspected cases of hyperthyroidism one must bear in mind that all these symptoms are not present in every case. In one there is increased pulse rate, in another tremor, in another diarrhœa, in another exophthalmos, in another loss of weight. Some show only progressive emaciation. A patient of mine, aged 64 years, with well established toxic adenoma complained only of morning sickness. She would wake up with what she described as a "bilious attack," and was violently ill. Upon examination, however, it was found that there had been a steady and progressive loss of weight, a nervousness extending over some years, an irregular heart, a blood pressure of 170 and 70, and a basal metabolic rate of + 50. Her biliousness stopped, the heart became regular, the blood pressure dropped to 130 to 80 and her weight increased after appropriate surgical treatment.

One might mention here a further class that undoubtedly exists, namely iodine hyperthyroidism. I am convinced that the indiscriminate use of iodine, either as iodized salt or on the prescription of a practising physician, has increased the incidence of hyperthyroidism. This is particularly true of its use in adults above the age of 20. We know that children stand iodine well, and there seems to be evidence that iodine in children will act as a prophylactic, and possibly will benefit those already showing thyroid enlargement. Its use, however, should be restricted to these two conditions in children, and in adults only as a preparatory measure to operation, and then in the form of Lugol's solution in adequate doses for a limited period of time. We know this, that cases of hyperthyroidism who have had one or more courses of iodine do not respond to this preliminary measure as do those who have never received the drug. Working on the assumption that iodine would change a nontoxic into a toxic adenoma, surgeons were slow to adopt the preliminary iodine treatment in toxic adenomas. At present however practically all goitre clinics are using it in both forms of toxic goitres with, fairly generally, beneficial results. The effect of preliminary iodine administration in hyperthyroidism, particularly exophthalmic goitre, is very startling. The patient becomes more restful, the nervousness diminishes, the pulse rate drops, and the basal metabolic rate comes down; in fact the picture changes completely if only temporarily. We are then not operating on toxic goitres at all, or at least on those showing a much lessened toxicity, and this explains the lowered mortality rate. This clinical change is borne out by the histological picture of the gland removed at operation, the section obtained being one largely of colloid goitre with very little evidence of hyperplasia present.

Since the use of Lugol's solution came in a rapidly decreasing number of thyroid artery ligations are being done. In fact the proper use of iodine has practically eliminated the necessity for ligation. There are exceptional and severe cases of hyperthyroidism, however, which do not respond sufficiently to Lugol's solution, and still require ligation. A ligation tests their ability to stand operation and usually results in a condition of lowered toxicity. In fact, there are cases in which multiple operations are not only justified but necessary, as many as four stages being undertaken. First, one superior thyroid artery is tied, then the other; then a lobectomy is done and finally a second lobectomy. You are all probably familiar with this method, introduced by Crile of Cleveland, and still practised more in his clinic than any other place in the world, but even Crile is finding less reason for this

procedure as time goes on. Let me here pay a tribute to Dr. Crile as the pioneer in the attempt to lower the mortality rate for thyroidectomy. At a time prior to the recognition of the efficacy of Lugol's solution, he noticed the disastrous effects of emotional disturbances such as precede an operation upon a toxic goitre. He was the first to suggest removing these painful stimuli.

The introduction of the basal metabolic test has been of great assistance in the diagnosis of hyperthyroidism, in the selection of the time at which to operate, and in the prognosis of the case. A well established case of toxic goitre is easily diagnosed without such a test, though as a confirmation it should always be done. It is in the earlier cases which do not exhibit a greater number of the typical symptoms that this test is particularly valuable; also as a negative finding in cardiac cases which show a rapid pulse and other signs which might be mistaken for toxic goitre. Again, there is the neurotic case who happens to have an enlargement of the thyroid but who exhibits a normal basal metabolic rate. Such will often be saved an unnecessary operation after this test.

The basal metabolic rate is an index of the rate of oxidation going on in the cells of the body. The test should be made after a night's rest, with no food for twelve hours preceding it. The normal in bed cases varies from –10 to +10; and in ambulatory cases from –15 to +15. The basal metabolic rate is a fair indication of the toxicity of the condition, remembering that in toxic adenoma the rate is not so high as in exophthalmic goitre. It is of great importance to operate on a falling and not on a rising rate. It is more dangerous to operate on the verge of a crisis with a moderately high rate than on a patient with a high rate who has passed the crisis and is improving clinically. The metabolic rate is not necessarily an index to the ability of the patient to withstand operation; of greater significance is a rapid and recent loss of weight, together with a high pulse pressure.

In the June issue of the *Archives of Internal Medicine* an article appears by Segal, Binswanzer and Strouse of Chicago on the effect of emotion on basal metabolism. The summary of the paper is as follows:

"1. The effects of the thought of impending operation on basal metabolic rate, blood pressure and pulse rate were studied in three groups of cases.

(a) A constant effect on the rate of metabolism was not seen in group 1, which consisted of patients of various types of nervous stability with a normal rate of metabolism.

(b) In group 2, which was made up of patients with hyperthyroidism who had received iodine according to the present day pre-operative routine, a marked rise in metabolic rate did not occur the day of operation.

(c) Group 3 was comprised of persons with hyperthyroidism who had not had iodine, as in group 2. In these patients a marked rise in the basal metabolic rate resulted the morning of supposed operation.

2. A practical point for consideration is the possibility of using the foregoing procedure as an index of complete or incomplete iodinization. A rise of the metabolic rate the morning of operation might indicate that an insufficient amount of iodine had been given."

We have always been sure of the results of preliminary iodine medication but this is the first attempt, to my knowledge, at proving this by experimentation.

### PRE-OPERATIVE PREPARATION

Remembering that in toxic goitres there is a burning up of body tissue, which is exemplified frequently by a rapid loss of weight notwithstanding a hearty appetite, it is important that a high caloric diet be instituted, this diet to be particularly rich in carbohydrates. In addition, a large quantity of fluids is administered, and with this a goodly supply of glucose. Rest is absolutely essential and this must be induced by some narcotic. As a preliminary to operation I employ the following régime:

A variable length of time in bed, depending on the extent of the toxicity, is prescribed before the actual preparation for operation. This is as follows:

1. Absolute rest in bed in hospital, preferably in a private room from which visitors are rigorously excluded. During the morning and afternoon the patient is encouraged to sleep by darkening the room and placing a cloth over the eyes. At this point it may be well to repeat the necessity for all the attendants, including the attending medical man, to use the utmost tact and to radiate confidence.

2. At least 100 ounces of fluids in 24 hours. Orangeade, sweetened with glucose, between meals.

3. A high caloric diet, low in protein, but rich in carbohydrates.

4. Lugol's solution, ten to fifteen minims three times a day in one ounce of grape juice or cream.

5. Luminal one and a half grains night and morning for the first few days, then at night only; bromides in addition if necessary.

6. Ice cap to heart.

Digitalis is not used unless there are signs of decompensation or auricular fibrillation present, then thirty minims are given every two hours for six doses. In a few days there will usually be a decided clinical improvement, as shown by a lessened nervousness and a lowered pulse rate. This will be demonstrated by an improved basal metabolic reading. This preparation is continued for a period varying from six to fourteen days.

Early on the morning of operation 100 grm. of glucose are given in orange juice, and also 20 to 30 minims of Lugol's solution. Three quarters of an hour previous to the operation hyoscine 1/150 gr. is given hypodermically, followed in one half hour by morphine gr. 1/6. and atropin gr. 1/50. This preparation usually assures a moderately calm patient for operation and one who shows very little change in pulse rate during the procedure.

A good deal has been written about the wisdom or otherwise of telling these patients when the operation is to occur. I do not have any hard and fast rule in this regard. Each case must be considered on its merits. Some go into hospital with the understanding that in about a week's time they will be operated upon. Some are notified the day previous to operation. I do not see much difference in this respect providing the pre-operative preparation has been adequate.

### OPERATION

Thyroidectomy may be done under local anæsthesia, general anæsthesia, or a combination of both; of the latter, one may employ local anæsthesia up to the point of actual resection of the gland, and then general; or general during the whole procedure augmented by local. As we know, inhalation anæsthetics cause suboxidation, so that deep anæsthesia is absolutely contraindicated, and this applies particularly to ether. After a little experience in all these different methods I prefer the combination of light nitrous oxide and oxygen, together with local by the infiltration method.

As local anæsthesia appears in all these methods, with the exception of one, it is well to discuss it in detail. The skin of the neck is prepared with alcohol, or mercurochrome 2 per cent. Novocaine, without adrenalin, ½ to ¾ of 1 per cent is injected with a long needle along the line of incision through one needle puncture. Through this same puncture the whole of the anterior aspect of the neck well beyond the sternomastoid muscles is also injected, taking care to keep the needle constantly in motion. This requires a good deal of solution; about 200 c.c. may be necessary for the superficial and deep injection. The incision is then made and the flaps dissected above and below, being sure to get adequate exposure. The fascia and muscles are then injected on either side of the mid line through about three punctures. These are then incised in the mid line downwards and this incision should extend from the thyroid cartilage to the sternum. The sternothyroid and sternohyoid muscles are then separated and the muscles of the right side retracted by an assistant. The capsule of the right lobe is then injected with novocain. This not only acts as an anæsthetic but lifts the capsule from the gland and facilitates dissection. When the capsule is incised and separated the gland is then injected both in its upper and lower poles. Resection of the lobe is now commenced. A similar course is followed on the left side. While novocain injection may add a few moments to the operation this objection is far outweighed by the lessening of the depth of general anæsthesia and the way in which dissection is facilitated.

Of course, bilateral resection is the universal operation to-day, except where there is a single adenoma. One gets very few recurrences if the greater bulk of both lobes is removed. My practice is to try to leave just a slice of thyroid tissue with the posterior capsule. By the resection method it is not necessary to isolate the superior thyroid arteries, as was the custom in the old days, but a portion of the superior pole is clamped and

tied with these vessels. As there are a great number of clamps used in the resection operation a great deal of tying is necessary, and woe betide the operator who is careless in this regard. After all bleeding points are secured the different layers are sutured separately and a soft rubber drain left in for twenty-four hours. During the operation the patient receives physiological saline interstitially, and before leaving the operating room is given morphine gr. 1/6.

On returning to the ward she is immediately given by the rectum 6 oz. of saline containing 10 per cent glucose and 30 to 40 mm. of Lugol's solution. The saline without Lugol's is repeated every four hours, and ten minims of Lugol's solution are given by the mouth three times a day for three days. It is very necessary that these patients be kept quiet, so that morphine is used liberally gr. 1/6 q.2.h. if required.

On the second day 2,500 to 3,000 c.c. of fluids should be ingested. The drain is removed in twenty-four hours after operation, and the skin sutures on the third or fourth day.

If the pre-operative and post-operative routine I have outlined is followed there is very moderate reaction and the patient is usually allowed to get up about the sixth day.

Those cases of acute post-operative hyperthyroidism which were formerly so dreaded are practically unknown since iodine has been used as a preliminary preparation and for seventy-two hours following operation. If during the operation there is evidence of considerable reaction, which is best exhibited by a rapidly increasing pulse rate, the wisest course is to stop, pack, and finish the job later on.

In addition to the above possibility other post-operative complications may occur such as hæmorrhage, post-operative tetany, or hypothyroidism. Pressure and ice caps will help to control oozing. Hæmoplastin may be given with advantage, or it may even be necessary to open the flaps and secure bleeding points. Mild post-operative tetany will be controlled by calcium lactate by mouth or subcutaneously, of if these fail, by parathyroid extract subcutaneously.

A mild hypothyroidism may follow a very radical operation. Unless all the gland has been removed this is usually controlled by small doses of thyroid extract, which usually need not be continued for long.

In the resection operation injury to the recurrent laryngeal nerves should be a very rare occurrence. Injury to one nerve is not very serious, but injury to both nerves is a catastrophe and calls for immediate tracheotomy.

## SUMMARY

I have endeavoured in this short paper to emphasize a few points which seem to be of paramount importance in the successful treatment of hyperthyroidism and in summary would mention:

1. The importance of gaining and holding the confidence of the patient.

2. The necessity for exclusion of all irritating and exciting influences.

3. The absolute indication for an adequate and careful preliminary preparation.

4. The desirability of guarding against sub-oxidation by using light anæsthesia.

5. The importance of removing an adequate amount of thyroid tissue.

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**Case of Magnesium Sulphate Poisoning.**—Harvey S. Thatcher reports the case of an American farmer, aged 26, poorly nourished, who had a provisional diagnosis of psychoneurosis of the neurasthenic type. At 6 a.m., he was evidently accidently given a dose of magnesium sulphate. He was found dead at 7:10 a.m. Approximately 1 litre of yellowish brown fluid was present in the stomach and a dark red and hæmorrhagic appearance of the lining of the stomach and small intestine, and considerable blood was mixed with the contents. The chemist reported 883½ grains (57 grm.) of magnesium sulphate in the contents of the stomach. As the dosage is 240 grains (15.5 grm.), the amount recovered was more than three times the required dose. The case reported illustrates that more care should be exercised in the administration of magnesium sulphate. Toxicity may result result without death. An idiosyncrasy may exist and the average dose may be toxic. If toxicity does occur after its use, the treatment consists of the subcutaneous or intravenous administration of calcium salts, according to Meltzer and Auer. There is an antagonistic action of calcium on the inhibitory effect of magnesium.—*J. Am. M. Ass.*, 1928, xci, 1185.

# DISSEMINATION OF THE BROAD TAPEWORM BY WILD CARNIVORA*

BY TEUNIS VERGEER

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IN a paper to appear in the *Journal of the American Medical Association* I have pointed out that the dog in the northern lake regions of Alberta, Manitoba, and Ontario is an important reservoir of the broad tapeworm of man. There the wall-eye and great northern pike, *Stizostedeon vitreum* Mitch. *and Esox lucius* L., respectively, are infested with broad tapeworm larvæ and are fed raw to dogs. The dogs live at or near water, so that the eggs of the adult broad tapeworms, *Diphyllobothrium latum* L., with which they are infested, readily get into the lakes and streams and make possible the reinfestation of the fish. Since numerous experiments have proved that dogs very easily acquire broad tapeworm infestations,[1] it is probable that the early reports[2] of broad tapeworm from dogs were actually correct, and it is possible that the immature *D. americanum* reported from a dog in Detroit by Hall[3] is *D. latum*.

In a paper appearing in the *Journal of Infectious Diseases* I have called attention to the possibility that some wild carnivores might also serve as carriers of the broad tapeworm of man and might constitute a factor in the maintenance of infestations in fish capable of harbouring the larvæ. Warthin[4] reported a broad tapeworm from a wild fox, probably *Vulpes fulvus* (Desmarest), from northern Michigan, and, since in general the parasites which infest the dogs also infest foxes, foxes in endemic areas must therefore be considered as factors in the dissemination of this tapeworm. That the grey wolf,[5] *Canis occidentalis* Richardson, and the coyote,[6] *Canis latrans* Say, are known to feed on fish is reported by Ernest Thompson Seton in his most interesting and detailed work on the life histories of northern animals. One grey wolf was reported to have taken fish from a fisherman's net while set through the ice. Since wolves and coyotes are common in the endemic regions of Canada, it is obvious that they must also aid in the maintenance of the infestations with *D. latum*. German workers have reported broad tapeworm from cats[7] and I have experimentally infested one domestic cat with a broad tapeworm.[8] It is well known that cats like fish, and in infested areas domestic cats doubtless have broad tapeworm.

Since the lynx, or bob-cat, *Lynx canadensis* Kerr, belongs to the same family as the domestic cat and is much larger, it is only reasonable to assume that the broad tapeworm can develop in its intestine. The lynx feeds mostly on small mammals and birds, varying its diet from time to time with fish[9] and frogs. It likes water and will voluntarily swin distances of two miles.[10] The lynx is common in infested areas in Canada and occurs in northern Minnesota and Michigan. It seems entirely probable that this animal occasionally harbours broad tapeworm and, because it often lives near water, may thus aid in the maintenance of the infestation in fish. Whether mink, martin, raccoon, fisher, and otter, all of which subsist wholly or partly on fish, are capable of becoming infested with broad tapeworm is not known. Since in cats the broad tapeworm is smaller than in other known hosts, and in dogs it is always smaller than in man, it seems that small size of the host may be a factor limiting the development of this tapeworm. The mink and martin are smaller than the house cat. Therefore it is difficult to believe that they can harbor *D. latum*. The fisher, otter, and raccoon are all larger than the cat, and experiments might show that they can serve as hosts of *D. latum*. However, none of these seem to be abundant in endemic areas, either in Canada or in the United States, while foxes, coyotes, wolves, and lynxes are rather

* Contribution from the Department of Zoology, University of Michigan. One of a series of investigations carried on under grant 131, awarded by the American Medical Association to Professors George R. La Rue and A. S. Warthin of the University of Michigan, under the former of whom the work has been conducted and to whom I here express my grateful appreciation.

common in Canada and not rare in upper Michigan and Minnesota.

The largest carnivore in America is the bear. It is not closely related to either the cat or the dog family. In its food habits it more closely resembles man than either the dog or the cat, since it eats berries, roots, and herbs in addition to animal food. If the broad tapeworm of man can develop in bears, the latter may be capable of harbouring much larger numbers of broad tapeworms of greater size than the mammals before mentioned, because of the diameter of the lumen and the length of their intestines. Unknown adult "bothriocephalid tapeworms" have been collected by Ward[11] "from bears in the northwestern United States and in Alaska and the larval stages of these cestodes in salmon in those regions." It is not reported that feeding experiments were performed. Bears have been reported by naturalists to stand in shallow streams and to scoop out fish as they come up to spawn. Such observations are confirmed by woodsmen whom I interviewed last September in the forest region northwest of Lake Superior. Here the wall-eyes and great northern pike crowd up the shallow streams to spawn, and bears by the sweep of a paw throw the fish on land. One man reported to me that he had seen a bear throw out twenty fish before it began to eat them. Seton[12] mentions spawning fish as a regular food supply of bears. It is only while spawning that fish are easily caught by bears. Just at that time all other food is scarce, and it is very possible that not only bears but also other carnivores, driven by hunger, "go fishing" or at least pick up stranded fish. Bears like water and they swim long distances. I have personally found signs of visiting bears on small islands from a half to a mile from shore. There were trees from which bears had pulled the bark and also old stumps and trunks which they had broken in pieces in search of grubs and ants.

Because bears eat considerable quantities of fish, like to be in the water, and live in numbers in areas where I have found the fish infested with larvæ of the broad tapeworm, and because they can probably harbour more and larger adult worms than any other mammal in North America, including man, it became a matter of importance to determine whether the bear could actually and readily become infested with the adult *D. latum*. For this purpose two young bears of the species *Ursus americanus* Pallas were obtained. One was a cinnamon-coloured male, the other a black female. Each weighed approximately 100 lb. They had been caught in Canada as "nursing babies" and reared "on the bottle." Immediately after weaning they were shipped to a city in western Michigan where they had since been fed exclusively on bread and milk. Their keeper states positively that they had never tasted fish or meat. Fæcal examinations proved that they were free from parasites. Eight plerocercoids which I had taken out of six wall-eyes from Thunder Bay, Lake Superior, and had identified as *D. latum*, were fed to the cinnamon bear in pieces of muscle of the fish. Uninfested muscle of the same fish was first offered to this bear and he spent considerable time investigating the fish by smelling, pawing, licking, and finally taking it in his mouth. These actions indicated that the bear was not acquainted with fish food. Once having tasted the fish, the bear wanted all he could get. Each of the eight plerocercoids in a separate piece of fish was fed to this cinnamon bear after which he was allowed to eat his breakfast of milk-soaked bread.

For the black bear ten plerocercoids, identified as *D. latum*, were taken out of twenty-five specimens of wall-eyes from Lake Nipigon. Some uninfested pieces of fish from the same lot were offered to the black bear but continually refused, demonstrating that this bear did not know the taste or odour of fish and was not interested. It confirmed the keeper's statement that the bear had never had fish. Beef was offered her afterward and it was also refused. The bear was starved for twenty-one hours, and again fish and meat were offered, but refused. Some dry bread was fed to the bear and afterward four plerocercoids, each embedded in a separate piece of milk-soaked bread, were readily taken. Thereupon she received a regular meal of bread and milk. Two hours later another plerocercoid was offered in milk-soaked bread, but the bear was not hungry and refused to take it. Finally, the six available plerocercoids were offered embedded in chocolate cake and no further difficulty was experienced, the bear eating them readily. Fæcal samples were taken twenty-three and

twenty-four days after the feeding of plerocercoids. Eggs characteristic of the broad tapeworm of man, *D. latum,* were identified in the fæces of each of the bears and were especially numerous in the fæcal material of the black bear. I had previously found in feeding experiments with dogs that plerocercoids did not establish themselves so readily when fed to a hungry animal as when fed about two hours after a meal, and I have obtained 100 per cent infestations by the last procedure. This probably accounts for the especially heavy infestation in the black bear. The infested bears are being kept for further study.

By means of these experiments I have proved that bears readily become infested with the broad tapeworm of man. They also give strength to Ward's[11] suggestion that the species from man may be the same as the species of bothriocephalids which he recovered from bears in the northwestern United States and Alaska. In the forested lake regions of Canada I found the plerocercoids of the broad tapeworm of man common in wall-eyes and great northern pike, and found that bears were common in the woods. Bears will continue to increase in numbers as long as their skin is of little commercial value. Nowadays trappers feel that there is no profit in taking them. In northern Michigan where fish are infested with broad tapeworm larvæ[8] bears are protected and increasing rapidly, if one can judge by claims for damage to livestock by bears. These claims, according to figures compiled by the state conservation department, amount to $6006.90 for the fiscal period between July, 1927 and July, 1928.

Since bears are common in regions where fish are infected with broad tapeworm larvæ, and since they eat a great deal of fish during the spawning season, it is evident that bears in these regions must have broad tapeworm. With their excrement they drop large numbers of broad tapeworm eggs daily. Many of these get into the water directly because, as before mentioned, the bear is a lover of water, likes to bathe and swim, and fishes while standing in it. In this manner the eggs hatch readily and eventually the fish in the lakes become reinfested.

From the evidence presented above it is clear that the infestation of fish with plerocercoids of broad tapeworm is partly beyond control of man. It is virtually impossible to prevent wild carnivores from eating raw fish. The extermination of our wild carnivores to prevent the infestation of fish with plerocercoids of *D. latum* is unthinkable. All of these considerations clearly point to the conclusion that, in order to protect man from the broad tapeworm, it will be necessary to devise adequate means of killing the larvæ before fish is eaten, and preferably before the fish reaches the consumer.

## SUMMARY

The dog, the fox, and the cat are known to serve as hosts of the adult broad tapeworm of man. Because of family relationships it is safe to assume that the wolf, the coyote, and the lynx are also capable of serving as hosts. Since all of these eat fish, they in all probability are factors in the dissemination of broad tapeworm in regions where fish are infested with the larvæ.

Bears are common in infested territories and catch and eat fish during the spawning seasons. Two bears have been experimentally infested with *D. latum* and thus the bear has been shown to be a very capable host of the broad tapeworm of man. The abundant bears in infested territories must constitute a considerable reservoir of broad tapeworm. Since they like to be in and about water, their egg-laden droppings must cause considerable reinfestation of the fish.

Because wild carnivores disseminate broad tapeworm the infestation of fish with broad tapeworm larvæ cannot be completely controlled by man.

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# Case Reports

## A CASE OF MENINGOCOCCAL SEPTICÆMIA OR SPOTTED FEVER

BY W. D. HAY, M.A., M.D., AND
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A school boy of thirteen years was going about as usual on Saturday morning, June 9, 1928. He went on his bicycle to a store which was three miles away, and after returning took his ordinary mid-day meal. About 2 o'clock in the afternoon he complained to his mother that he felt tired and that his arms and legs were stiff and sore. By 6 o'clock his condition was not improved and he complained further of headache and pains in the back. Later on in the evening he vomited. When some of the members of the family returned from the city, about 10 o'clock, he got up and examined the purchases which had been made. About 12.30 o'clock his condition became so alarming that medical aid was summoned. When seen shortly after 1 o'clock the boy's temperature was 104°; pulse 160, and scarcely perceptible. He died about 5 o'clock, after an illness of fifteen hours' duration. Just before death the pupils became widely dilated, the head somewhat retracted, and there was some stiffness in the limbs. A diagnosis of meningitis was made by the attending physician. No history of any recent illness could be obtained from the parents.

An autopsy was performed while the body was still warm. There were several petechial hæmorrhages into the skin over the legs, arms and face. Similar hæmorrhages were found under the visceral pericardium. The heart was otherwise normal. There were extensive hæmorrhages under the pleura of both lungs. The lung tissue was intensely congested. The spleen was somewhat congested and soft.

The brain and meninges were markedly congested. The spinal fluid was clear. There was no apparent exudate into the subarachnoid space.

Cultures of meningococci were obtained from the base of the brain, the naso-pharynx, the heart's blood, and the spleen. These organisms were agglutinated by the polyvalent meningococcus serum prepared by the Connaught Laboratories.

The microscopical findings were as follows. Hæmorrhages were present in the pleura. The smaller bronchi were filled with desquamated cells and leucocytes, and amongst these could be seen masses of organisms. Some of these were streptococci, others diplococci with the morphological and staining characters of the meningococcus. The spleen showed congestion, hæmorrhages were present in the pulp, and there were necrotic foci in the Malpighian bodies, but no organisms could be found. The kidneys, liver, and heart showed intense cloudy swelling. The brain showed no evidence of exudate or cellular infiltration of the meninges. The only microscopical change was congestion.

### DISCUSSION

This is an example of the septicæmic type of meningococcal infection with only slight involvement of the central nervous system. Worster-Drought and Kennedy* quote a case in their book on cerebro-spinal fever of a child dying after an illness of thirteen hours only. The fact that no outbreak of this disease had occurred in the district for a considerable time made the diagnosis difficult. The chief diagnostic findings are, the sudden onset of acute symptoms, and the presence of cutaneous hæmorrhages, with or without evidence of meningeal irritation. It is useless to wait for a bacteriological diagnosis before giving serum when the patient presents these symptoms. Experience shows that in these acute cases the intravenous administration of serum is just as necessary as the intrathecal treatment.

Eighty-five persons who had been in contact with this boy were examined in the Richardson Laboratory, and it was found that the father and one of the other children were carriers. In fact, the swabs from the naso-pharynx of the father gave almost pure cultures of the meningococcus. These organisms were agglutinated (1-40) by the Connaught Laboratory serum. The two carriers were treated with serum. It is interesting to note that both

* Cerebro-Spinal Fever, Worster-Drought & Kennedy, A. C. Black, Ltd., London, W.1, 1919.

suffered severe serum reactions from the 8th to the 12th days, and that in both cases the organisms rapidly disappeared during this period.

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## A CASE OF CO-EXISTING BENIGN ŒSOPHAGEAL AND PYLORIC STENOSIS

BY WILFRID L. GRAHAM M.B., F.R.C.S. (Ed.) AND W. H. HATFIELD, M.B.

*Vancouver*

The following case has been thought worthy of reporting on account of the rarity of an œsophageal obstruction being associated with a pyloric stenosis; furthermore the œsophageal obstruction is of interest from an etiological standpoint, the common causes being here excluded:

### CASE REPORT

*Present Illness.*—Mrs. W. Y., aged 40, Canadian housewife, came into the office on November 14, 1927, complaining of loss of weight and attacks of vomiting. Previous to Christmas, 1926, the patient had been in fairly good health, though always troubled more or less with "indigestion." At this time she began to have water-brash and a sense of fullness in the epigastrium, with occasional attacks of vomiting which usually came on one or two hours after meals. The vomiting was not associated with pain. These symptoms persisted to some extent until June, 1927, when her vomiting became more persistent and was of a projectile type, but as before was not associated with nausea or pain. Her weight up to this time had remained constant at about 130 lb. As the vomiting became more severe, the vomitus assumed a black appearance, and her physician found that there was blood in the stool. In August she began to experience a slight difficulty in swallowing and the vomiting occurred almost immediately after meals.

The patient was admitted to hospital at this time, where she remained for three months under her physician's care. No barium series was done, the case being considered an inoperable carcinoma of the stomach. During this period she lost weight rapidly and her vomiting was not controlled. Her weight on discharge in August was 80 lb., and she was given to understand that her prognosis was hopeless. The patient found that she could retain small amounts of fluid if taken at frequent intervals, but could not take solids as they were almost immediately regurgitated. On a strictly fluid diet her vomiting stopped and her weight slightly increased. For the next month the patient remained fairly comfortable, but she was unable to change her fluid regime, even semi-solids initiating vomiting. The difficulty in swallowing had increased. From October until seen by us in November she had not vomited, but was beginning to lose weight again. When seen on November 14th, 1927, her weight was 81 lb., and she was cachectic in appearance and very weak.

*Past History.*—On close questioning, the patient gave a typical history of a peptic ulcer which had its origin about twenty years ago. The history was disconnected but definite. She stated that five years ago her pain following meals disappeared and she remained in good health until the beginning of the present illness. She had had influenza in 1926.

The *Family History* was unimportant.

*Physical Examination.*—An emaciated cachectic-appearing woman of about middle life. Apart from her abdomen the physical examination was negative, except for a fairly large non-toxic adenoma of her thyroid.

The abdomen appeared full, the skin inelastic and dry. A fluid wave could be elicited across the whole abdomen, with a definite splash most marked in the region of the umbilicus. Resonance was normal in the loins. There was no rigidity and no palpable mass, but a tender point was present in the region of the pylorus. The liver, spleen, and kidneys were not palpable. Rectal and pelvic examinations were negative.

*Laboratory Findings.*—Red blood cells; 2,500,000 per c.mm. Hæmoglobin was 45 per cent. The smear showed the picture of a secondary anæmia. Urinalysis; negative. A subsequent stomach analysis showed no free acid. A barium series revealed a very large atonic stomach with the lesser curvature at the level of the iliac crests (See Fig. 1), with an almost complete pyloric stenosis. Malignancy was considered but was excluded on account of the appearance of the x-ray.

The patient was admitted to hospital on November 16, 1927. A Rehfuss tube was passed and an unsuccessful attempt was made to aspirate the stomach contents. A considerable amount of water was injected through the tube, but only a small part of it could be recovered. The question of an œsophageal occlusion was then

considered and the fluoroscope revealed the fact that the Rehfuss tube lodged about 1½ inches above the diaphgram. A heavy barium paste was then given and showed that the œsophagus filled up to this point; the lower margin of the barium was cone-shaped (a rather long pointed cone), but below this a very narrow shadow of barium was seen, extending downward into the stomach, the calibre of the shadow being little more than that of a knitting needle. The exact nature of this blockage was not obvious at this time. (See Fig. 2.)

FIG. 1.—Pyloric stenosis. Extreme ptosis of the stomach, the lesser curvature being on a level with the iliac crest.

It was apparent that there was an obstruction practically occluding both ends of the stomach; a pyloric stenosis, certainly benign, due to a healed pyloric ulcer; and an œsophageal stenosis of unknown origin.

The first problem was obviously the œsophageal stricture, and with this in view Dr. F. W. Brydone-Jack was asked to do an œsophagoscopy. This, performed under local anæsthesia, on November 23rd, 1927, revealed a stricture of the œsophagus, with no ulceration and no hyperkeratosis of the œsophageal mucous membrane. A dilatation of the stricture was partially accomplished at the first attempt, and a gum-elastic feeding tube was inserted into the stomach. The stricture involved about three inches of the œsophagus. The stomach was then aspirated and for the following week the patient was kept on a high caloric fluid diet injected through the tube, with a nightly aspiration of the stomach. Intravenous glucose and hyperdermoclysis were also used. At the conclusion of the week the patient had gained 9¾ lb., a great deal of which, of course, was due to her increased fluid intake Her general appearance, however, was very much improved.

On November 30th a second dilatation was done and a Rehfuss tube was passed into the

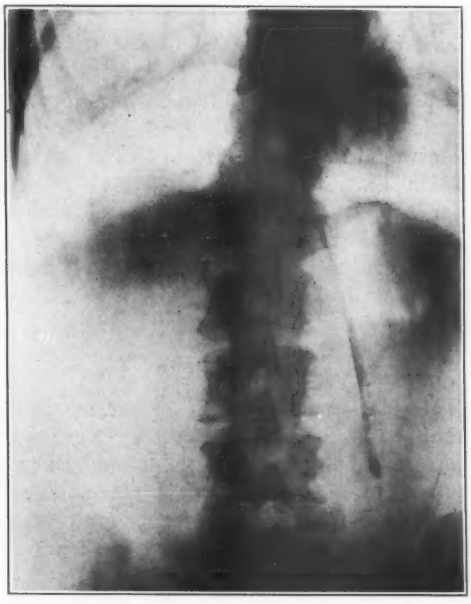

FIG. 2.—Œsophageal obstruction involving the lower three inches of the œsophagus.

stomach. Following this the patient was able to swallow fluids, and, with a nightly aspiration, she was kept fairly comfortable. The aspiration was made necessary by the atony of the gastric wall, resulting from the overdistension caused by the weight of the fluid which had remained so long in the stomach; this could neither pass down, nor could it be vomited up, owing to the pyloric stenosis on the one hand and the œsophageal occlusion on the other. The patient was discharged on December 2nd, 1927, weighing 95 lb., a further gain of four lb.

On December 5th the patient reported to the office, feeling much stronger. Dr. Brydone-Jack again passed an œsophageal No. 14 bougie, and found that the stricture had shown no

tendency to recur. The patient was kept under observation for the next month and her general condition rapidly improved. The diet consisted mainly of fluids of a high caloric value, and the tone of her gastric musculature was rapidly recovering, as visualized under the fluoroscope. The gain in average weekly weight was about four pounds, and on February 6th her weight was 118 lb., and she felt in better health than she had for years.

She had now gained enough strength to permit of a posterior gastroenterostomy being done.

Exploration revealed a stomach of fairly normal tone, with the scar of a healed ulcer on the pyloric ring. The stenosis was almost complete. In view of the possibility of the œsophageal stricture recurring, the transverse mesocolon was sutured well back from the stoma on the posterior gastric wall, so that if a hypertonicity resulted there would be no obstruction to the stoma by its being drawn up into the lesser sac. Recovery from the operation was uneventful and the patient was discharged three weeks later. On September 10, 1928, she reported in excellent health; she had no gastric symptoms and was able to take an ample controlled diet.

### COMMENT

This case should impress on our minds two essential points: first; the necessity of a routine fluoroscopic examination of the œsophagus in all cases in which a barium series is being done; and, secondly, the importance of a careful history-taking. In reporting this case we are holding no brief for ourselves in the fact that a complete clinical diagnosis was not made. In retrospect one can easily follow the course of this woman's history; beginning twenty years ago with a peptic ulcer, through fifteen years of a fairly typical history; the development of a pyloric stenosis with its attending emesis; the development of an œsophageal stricture, which first interfered with swallowing, then later caused a different type of vomiting from that which previously had been present; and finally the inability to vomit gastric contents due to the stenosis.

Having excluded carcinoma and cardiospasm, both on the evidence of the x-ray pictures and of the œsophagoscopy, one is at a loss to explain this type of benign stricture. It did not have the appearance of a hyperkeratosis, such as was indicated in the cases recently reported by Dr. F. N. G. Starr, of Toronto, nor did it have the appearance of a stricture resulting from one of the common poisons.

Another point that might be emphasized is the importance of giving a patient the advantage of all modern facilities, especially the x-ray, and, in this type of case, the œsophagoscope. We were able by these means to give a good prognosis in a case which appeared from the clinical point of view to be hopeless. Even an exploratory laparotomy should be done before considering a case as being beyond hope.

## TWO CASES OF CANCER OF THE LUNG*

BY THE MEDICAL STAFF OF THE MOUNTAIN SANATORIUM,

*Hamilton, Ont.*

### CASE 1

The clinically remarkable features of this case are the long duration of the illness, the lack of symptoms other than hæmorrhage, the afebrile course of the disease, and the relative obesity of the patient. The pathologically remarkable features are the presence of spontaneous pneumothorax, the occurrence of atelectasis, the relatively benign character of the tumour, and the presence of bronchiectasis distal to the tumour.

*History of Illness.*—Mrs. J. W., 43 years of age, with five healthy children; no occupation other than her home. There was no history of exposure to tuberculosis nor of cancer in the family. She insisted that she had had no previous illnesses and had always been strong and healthy. Her final illness began about six years before death with an attack of pain in the *left* side of the chest, with cough and sputum, and a hæmoptysis of moderate amount. She remained in bed only a few days, and stated that she had night sweats with fever at this time for two or three weeks. About three weeks later, she had a second hæmoptysis amounting to half a cupful and a year later three of like size. From this time on the hæmorrhages increased in frequency, but her general condition remained good. She felt well and continued at work. In March, 1927, hæmoptyses occurred almost daily and averaged about two ounces in amount. She came to the Mountain Sanatorium on April 12, 1927, and remained until June 4, 1927. While there her

* Reported by Dr. T. G. Heaton.

illness remained afebrile and she had no cough or sputum. She went home on light exercise and was re-admitted on October 31, 1927, following several hæmoptyses. She was kept in bed and remained free of hæmoptysis after this until February 9th, 1928. During this admission also her illness was afebrile. She had occasional morning cough with a little sputum, and complained of no other symptoms. On February 9th the hæmoptyses became frequent and severe. On February 14th, an attempt was made to control them by artificial pneumothorax. The right pleural cavity was entered in several places but manometer readings of minus 40 to plus 60 were obtained. No air was put in. Next day an x-ray of the chest confirmed the diagnosis of right-sided pneumothorax. There was no loss of weight at any time during her illness and she remained moderately obese.

On February 16th, the patient died of hæmorrhage with aspiration of blood.

*Physical Examination.* — The patient was cyanosed for several days after her second admission. When this cleared up, her appearance was healthy. The chest showed slight impairment of resonance at the right base anteriorly and posteriorly. Medium and coarse râles were heard at the left base on admission. These persisted.

The first x-ray examination was made by Dr. L. R. Hess in March, 1927, and his report at that time read in part as follows:

"This film shows the characteristic partial collapse of the right lung with elevation of the diaphragm, retraction of the heart and mediastinal contents and deviation of the trachea to the right due to a foreign body, (aspirated blood) in the bronchus."

Second films were taken at the Mountain Sanatorium on April 12, 1927, and showed less contraction of the lung field on the right side than those taken in March. This report read as follows:

"The left dome of the diaphragm is normal; the angles are clear. The left cardiac border is more oblique than usual. The right cardiac border is not clear. There is an irregular triangular-shaped area of homogeneous shadowing filling in the angle between the right dome and the bodies of the vertebræ. The apex of this extends to the third rib anteriorly. The interpretation of this area is doubtful. Extending out from this in the third and fourth interspaces there is a little scattered medium mottling. The paravertebral trunk in the right lung extends into the upper two-thirds of the apex. The linear markings in the right lung in the first and second interspaces are a little heavier than average. In the left lung the linear markings are a little heavier than average below the third rib."

An x-ray picture was taken on June 6th following the introduction of lipiodol. This did not show bronchiectasis, but the lipiodol had not passed the obstruction in the bronchus to the lower lobe. Later, part of the lipiodol must have got by the obstruction as it was found distal to the tumour at autopsy.

*Anatomical Diagnosis at Autopsy.*—Cancer of the lung, (bronchogenic, right lower lobe); hæmorrhage into the lungs; rightold pleural adhesions; right lower bronchiectasis, distal to the tumour; old atelectasis and fibrosis of right lower lobe; lipiodol in bronchiectatic cavity; tuberculosis of right pleura (healed); right spontaneous pneumothorax; atelectasis of left upper lobe; old peritoneal adhesions; multiple leiomyomata of the uterus; pigmentation of the large intestine; hyperplasia of lymphoid tissue of the large intestine.

The *right lung* measured 19 x 12 x 6 cm. and weighed 16½ ounces. The pleural surface bore a fibrous tag at the apex and numerous tags about the base of the lung. The surface of the lung was puckered at the apex, and here a large bulla of air 1 cm. in diameter was present. A spot on the posterior surface of the lung was roughened by a cluster of four or five small yellowish firm nodules of less than 1 mm. in diameter. The anterior half of the lung was pinkish yellow in colour, marked by a loose net-work of gray anthracotic pigmentation. The colour shaded to a deep red in the posterior parts of the lung. A rudimentary fissure between the upper and middle lobes was present. No other fissures could be distinguished.

The lung was soft and doughy in consistency, except in the region of the cardiophrenic angle where it was quite firm and inelastic. Except in this place, the lung was crepitant throughout. The part of the lung served by the lower bronchial branch was small and of irregularly firm consistency, being firmest at the cardio-

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phrenic angle. The main bronchus of this contracted part of the lung was completely occluded by a mass of firm whitish tissue. This mass was firmly attached to the wall of the bronchus in an area equal to about one-quarter of the surface of the mass, and at the point of attachment appeared to invade the wall of the bronchus but not to penetrate it. The remainder of the surface of the mass was free in the bronchus and covered by a glistening fibrous membrane. The mass was roughly mushroom shape, and measured about 5 cm. in diameter at the large end and was contained completely within the bronchus. The large end of the mass lay distally. The containing bronchus narrowed down beyond it to a little more than normal size. The stem of the mass pointed proximally and was unattached. It extended up the bronchus to its juncture with the bronchus of the upper lobe. The cut surface of the mass was creamy white in colour and uniform in appearance, except for an area of hæmorrhage in the large end of the tumour, measuring about one to two cm. in diameter. This area of hæmorrhage led to the surface of the mass at a small point buried in the crevice where the mass was attached to the bronchial wall. Large blood-vessels ran in close proximity to the tumour, but none appeared to be invaded. The bronchus containing the tumour bifurcated distally to it and each branch led to a bronchiectatic dilatation. The larger of these measured about 1.5 cm. in diameter and was full of lipiodol. The smaller measured about 1 cm. in diameter and was full of creamy yellow pus. No other bronchiectatic cavities were present and there was no blood in these cavities. The lung-tissue surrounding these cavities was firm, fibrous and mottled with grayish black anthracotic pigmentation. Clotted blood was present in the bronchus about the tumour. The cut surface of the remainder of the lung was dark pinkish red in colour with widespread blotching of darker red. The peribronchial lymph glands were soft, gray in colour, small, and showed no gross evidence of metastases.

All parts of the body, except the head were examined as carefully as the lungs, and no other significant pathological lesion was found.

Histologically the tumour was made up of cells which closely resembled those of the normal bronchial mucosa. They tended to be cylindrical in shape and to form rows or circular gland-like structures. The nuclei for the most part stained darkly. The tumour cells invaded the wall of the bronchus in cords and masses, and extended a short distance into the fibrosed lung parenchyma beyond the bronchus. There was a delicate fibrous connective-tissue stroma with numerous capillary blood vessels. (See Fig. 1).

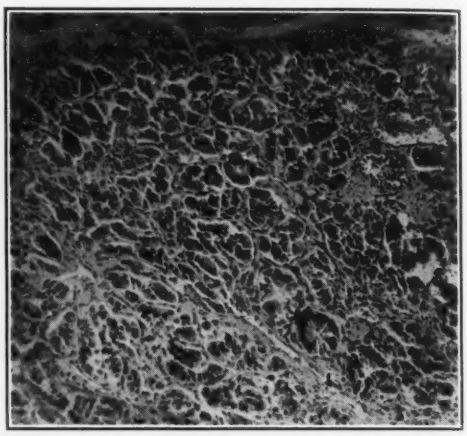

FIG. 1.—Carcinoma of the lung. The section shows the marked tendency to an orderly arrangement of the tumour cells.

## DISCUSSION

About 400 other reported cases were looked over and in no other case was the duration so long as in the present one. Two cases of four years' duration have been reported, one by Adler,[1] and the other by Kerley.[2] A case with a somewhat similar history was reported at the Laennec Society meeting in Toronto in April, 1928, the first hæmorrhage being seven years before death, and the autopsy revealing a carcinomatosis of the lungs.

The absence of metastases is noteworthy in a case of such duration as this one. Metastases were absent in 33 of Adler's 374 cases. The microscopical and gross appearance of the tumour also suggested its relatively benign character.

The presence of spontaneous pneumothorax might be explained by the rupture of an emphysematous bulla of the right lung, similar to that described in the autopsy report. Such an event might be brought about by increase in negative pressure in the chest when portions of either lung become atelectatic owing to aspirated blood obstructing a bronchus.

The presence of bronchiectasis was probably secondary to obstruction of the bronchus by the tumour. Such an event is known to be a common sequel of foreign-body obstruction of a bronchus.

The afebrile character of the illness was a strong diagnostic point.

### CASE 2

F. D., a white male, aged 42 years. This patient's history dated back only four months before death. The illness consisted of persistent cough and sputum, with increasing weakness and loss of weight. His temperature was normal for the most part but showed occasional periods of febrile activity. He had very large serosanguineous pleural and pericardial effusions.

*Autopsy.*—Examination revealed a carcinomatosis of the left lung, with metastases in the neighbouring glands, parietal pericardium, liver, lymph-nodes at the lesser curvature of the stomach, and the right adrenal gland. Healed tuberculosis of the peribronchial glands was found on the right side, and an old pleuritis was present on the right side with areas of calcification. A complete autopsy was performed without the discovery of other significant lesions.

Microscopical examination of the tumour showed it to consist of atypical epithelial cells without any tendency to orderly arrangement. The nuclei varied greatly in size, shape, staining quality and showed numerous mitotic figures. This growth is thought to be alveolo-genic in contrast to the bronchogenic origin in the first case. (See Fig. 2).

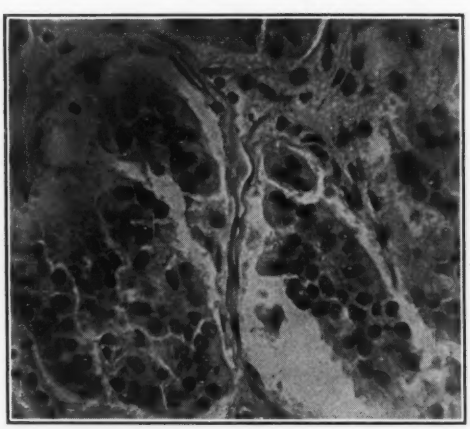

FIG. 2.—Carcinoma of the lung. Cancer cells are seen in the alveoli.


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## A CASE OF ANURIA DUE TO DIFFUSE INFARCTION OF THE RENAL CORTEX*


BY W. DE M. SCRIVER, B.A., M.D.,

*Montreal*


A. B., a French-Canadian woman of thirty-four years of age, was admitted on September 21, 1928, to the Royal Victoria Montreal Maternity Hospital with the typical history and physical findings of retroplacental hæmorrhage.

Due to the patient's poor memory there was difficulty in elucidating a full history of past illnesses. She stated that she had suffered from pains in the joints some years previously, but had otherwise been quite well. In 1913 she was married and since then had had twelve normal, full-term pregnancies. In November, 1926, there was an abortion in the third month of gestation; and again in September, 1927, in the sixth month. During the past three years the patient had voided somewhat less frequently than had been her habit, approximately three to four times daily, and occasionally once at night. She stated that urination had continued thus up to the time of admission to the hospital. There had never been any œdema, but in this pregnancy she had suffered from flashes of light before the eyes, and attacks of dizziness. She had no knowledge of any pre-existing hypertension.

### CLINICAL HISTORY

The present attack commenced suddenly, the day before admission, with sharp pains in the lower abdomen which persisted; the abdomen became rigid and there was a very small hæmorrhage *per vaginam*.

Shortly after admission to the hospital the membranes were ruptured artificially, followed an hour later by the spontaneous delivery of a six months' fetus. About 1000 c.c. of clotted


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Read before the Montreal Medico-Chirurgical Society, October 26, 1928.

blood were expelled with the placenta, the surface of which showed many white infarets.

The urine obtained by catheterization on admission showed a large amount of albumen; a few granular casts were noted, together with occasional pus cells and red blood cells, which were thought to be due to trauma in catheterizing. The blood pressure at this time was 170 (systolic) and 110 (diastolic). Seven hours after delivery 25 c.c. of urine were voided; a similar amount was obtained by catheterization five hours later, and only 10 c.c. after twelve hours, a total of 60 c.c. in twenty-four hours. All of these specimens showed a large amount of albumen and a moderate number of granular casts, but no red blood cells were seen.

At this stage the nephritis service of the medical department was called in consultation, when the following physical findings were noted. The patient appeared rational and relatively bright. There was no dyspnœa and no œdema. Pallor was well marked. The teeth were in poor condition; the nose and throat were negative. The pulse was regular, the radial vessels apparently a little thickened; the blood pressure was 160 (systolic) and 110 (diastolic). The heart was enlarged slightly to the left; no murmurs were made out. The lungs were clear. The liver was not enlarged. The abdomen presented the usual post-partum features. Reflexes were active and no pathological signs were elicited. The fundi showed no hæmorrhage or exudate. An examination was made by the department of ophthalmology who reported: "A small, pigmented dot at the end of a small capillary close to the macular area of the right eye. There is also a patch of atrophied retinal tissue somewhat below this spot. This may possibly be, if anything, the evidence of an older acute outbreak of retinitis; it does not represent anything that has taken place at the present moment." The blood chemistry determined at this time showed a moderate urea retention of 0.528 grams per litre, with a more significant creatinine figure of 2.47 mgm. per 100 c.c.

In spite of various therapeutic measures, including modified hot packs by means of the electric baker, hot colonic and bladder lavages, intravenous injections of 20 per cent glucose saline solutions, and dry cupping, no diuresis could be induced, a total of 11 c.c. of urine being secreted on the following day and less than 1 c.c. on the third day. These specimens showed the same chemical and microscopic findings as the previous ones. Complete anuria then followed until the death of the patient on September 30th, nine days after admission.

As it was considered advisable to rule out the possibility of a surgical obstruction, on September 28th a cystoscopy was performed by the urological department in which no marked lesion was found in the bladder and the ureters were easily catheterized as far as the renal pelves.

Most noticeable in the progress of the condition was the relatively clear mentality of the patient up to the time of her death. In spite of a steadily increasing nitrogen retention, with a blood creatinine figure two days before death of 6.66 mgm. per 100 c.c., none of the usual uræmic symptoms was noted, while the blood pressure fell steadily from 170 (systolic) and 110 (diastolic) on admission to 135 (systolic) and 85 (diastolic) two days before death.

A second interesting feature was the large output of fluid by the bowel, which ranged from 1,600 to 2,500 c.c. for the twenty-four hour periods, during which the patient was receiving a total of 4,000 c.c. of fluids. This elimination was aided by the administration of one ounce of magnesium sulphate three times daily; it is possible that this may explain why no œdema developed.

### AUTOPSY FINDINGS

At autopsy there was no evident œdema; the peritoneal cavity contained about 700 c.c., and the pericardial cavity 40 c.c., of straw-coloured fluid; the pleural cavities, however, were dry. The uterus showed the usual post-partum condition and its vessels were intact. In the heart, which weighed 380 grm., no gross lesions were evident; microscopical section showed a moderate fatty degeneration of the musculature. There were a few small early atheromatous plaques in the aorta, and all the blood vessels appeared to be well preserved. The mucosa of the cæcum and transverse colon was dark red, swollen, œdematous, and riddled with numerous small irregular ulcerations.

Both kidneys were large, weighing 380 grm. each. The capsule was slightly adherent, and when stripped left a bulging surface, pale yellow in colour, with irregular, finely-mottled,

reddish areas. On section, the cortex, which measured 6 mm. in width, was pale yellow and greasy in appearance, the differentiation between it and the darker reddish and apparently well preserved medulla being much accentuated. Between cortex and medulla was a narrow zone, bright red in colour. The vessels were engorged; pelves and ureters were intact and clear. Microscopical sections showed that the appearance of the cortex was due to massive infarction, with simple necrosis of the parenchymatous cells, the blood vessels being dilated and filled with blood and organizing thrombus, this condition extending into the capillaries. In some areas which were better preserved there was an exudate of leucocytes and red blood cells, with hyaline casts in the tubules and patchy areas of calcareous degeneration. Directly under the capsule was a narrow band of relatively well preserved cortex. The cells of the medulla showed no marked lesions, the straight tubules containing scattered hyaline casts.

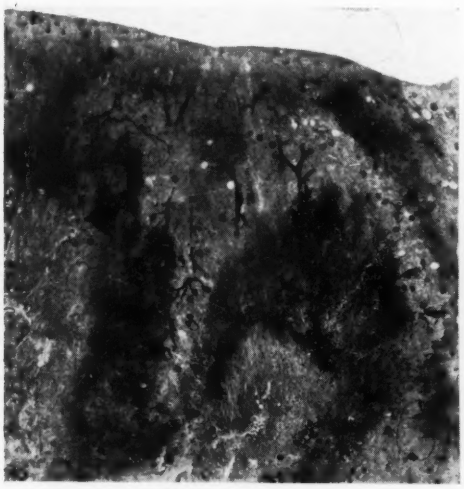

FIG. 1.—(x10). Photograph of a small area from a complete longitudinal section of the kidney; eosin-hæmatoxylin stain. Numerous infarcted glomeruli can be seen as small dots. In many cases their connection with the infarcted vessels is easily to be made out. The area of hyperæmia and extravasation in the cortex adjoining the medulla is well shown.

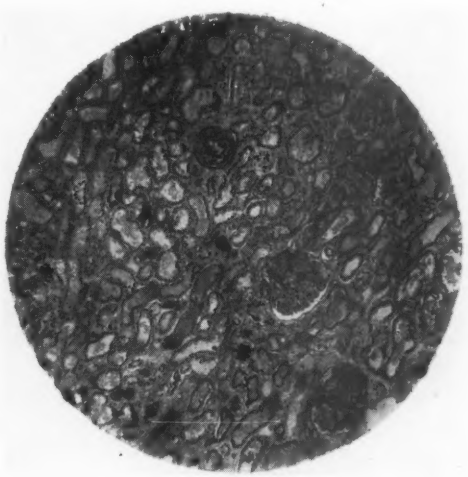

FIG. 2.—Higher power view of the cortex. Note the necrosis of the tubules, many of which contain hyaline casts. In the upper half of the field a thrombosed artery is seen, while at 5 o'clock is a glomerulus, the afferent artery of which is filled with thrombus.

The etiology of this remarkable condition is being made the subject of a study by Professor Horst Oertel, who will make a further report on a pathological basis. My thanks are due to him for permission to use the autopsy records in preparing this case report.

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**Anti-Diphtheritic Immunization at the Maritime Hospital of Berck.**—Drs. M. and G. A. Mozer and Cofino give the results of the immunization of the children in this hospital during the past three years. During this period there were admitted 1,100 children afflicted with external forms of tuberculosis and rickets. During the three years previous to the institution of this procedure (December, 1925) there were 137 cases of diphtheria, of whom 12 died. Subsequent to this date there were only 36 cases, 16 of whom were among the non-vaccinated, with one death, and 11 in children who had received only two doses of antitoxin. They found after three injections of anatoxin that the proportion of positive Schick tests fell from 36 to 4.5 per cent. A fourth supplementary injection reduced to 4 the number of 44 patients in whom the Schick test had remained positive.—*Le Progrès Médical*, 1928, xliii, 1757.

# Editorial

## THE MONTREAL HEALTH SURVEY

THE Montreal Health Survey, in view of the many interesting features it presents, stands as a demonstration of the necessity of making such surveys before planning any concrete, rational program of health work. Facts are thus brought to the surface, eloquent figures are found, and a full analysis of the situation is made possible. Public attention is then focussed on the recommendations presented, based on the survey, with the best prospects for their realization. Therefore, anyone interested in promoting public health in any community cannot but congratulate the Montreal Anti-Tuberculosis and General Health League upon the presentation of such a complete survey of health conditions in Montreal.

The time is now opportune to analyse the conditions necessary for the carrying out of the program laid out for improving existing conditions. As these conditions apply practically to every community their brief presentation in the *Canadian Medical Association Journal* seems to be advisable.

The first of these conditions is *the hearty co-operation of the medical profession*. Medical men are the natural advisors of the laity on health matters. Their routine daily contact with the sick draws their attention continually to the problem of prevention. So many are the evils encountered which could, and therefore, ought to, have been eliminated if proper measures had been resorted to in time! Contagious diseases, acute infections, industrial and other accidents, are illustrative examples. In their prevention members of the medical profession have their share. They must notify the proper authorities of all contagious cases they meet in their practice. They must help in every way in isolating these patients, in protecting contacts, particularly in excluding from school children living in the same home. They must give all possible information helpful in the carrying out of the epidemiological survey. They must also advocate and practise as much as possible vaccination against those diseases which can be so prevented, particularly small-pox, diphtheria and typhoid fever. They must keep themselves informed on the progress accomplished along these lines by scientists, notably in the case of scarlet fever and tuberculosis. With such help unreservedly given by the medical profession one can easily realize how much greater protection can be afforded our population.

A second condition essential to the success of any health program is *the qualification of the personnel taking part in its realization*. It is now known, and it must be accepted by all concerned, that public health is a specialty in the immense field of medicine. No one to-day can adequately cover all the subjects included in the medical sciences. Dr. George Vincent, President of the Rockefeller Foundation, in his annual report for 1923, has rightly pointed out this need in the following terms:

"The Rockefeller Foundation fixes its attention upon permanent, constructive activities in the fields of public health, medical education, and the premedical sciences. Experience clearly shows that the fundamental need in the progress of preventive medicine is a specialized personnel, thoroughly grounded in the underlying sciences and familiar with the best methods of practical application and administration. The idea that an ordinary medical education fits a doctor to be a health officer is a serious error which does much harm. He needs additional graduate training for what is recognized as a special profession."

This statement from so high an authority implies a twofold conclusion: that our universities give the necessary training, and that our health agencies, official and voluntary, make this training a *sine qua non* for the appointment of their personnel, medical, nursing, etc.

A third condition necessary in health protection extended to the community is *the development of the voluntary health agencies.*

These organizations, enjoying more freedom, can undertake special investigations, and can adopt particular activities more easily than the official departments. They possess also the additional advantage of being free from political interference. We are provided already with these agencies and their contribution to public health is a very valuable one. Their aim is to carry on their program harmoniously and side by side with the official health departments.

A fourth essential condition in the success of any project in health matters is *public support*. This implies the absolute necessity of health education. For its achievement all must participate, our schooi and university authorities as well as the medical profession. The teaching and the practice of hygiene in our elementary schools could well be further developed with great advantage. At the University of Montreal, lectures on hygiene are given to the students of all the faculties and affiliated schools. The aim is to prepare the leaders of to-morrow to better understand and carry on their responsibilities, when in office as members of school commissions, municipal councils, or in the provincial legislature. The medical profession has also the duty of co-operating in the educational movement of the population in health matters. Naturally, all look to the medical profession for guidance in these questions.

Let us hope that, with all these conditions fulfilled, and others which might be added, the health survey of Montreal will be helpful not only to the city proper but also to all the municipalities of the country. It is our duty to aid in extending its benefits to all of our countrymen.

J. A. BAUDOUIN

## THE PRESENT STATUS OF THE ANTIRACHITIC VITAMIN PROBLEM

A FEW years ago those interested in the newer therapy of rickets were much puzzled by the fact that this disorder could be cured by two such different agencies as ultra-violet light and cod liver oil (through its content of vitamin D). The matter was considerably clarified when it was discovered that radiation of the food in experimental rickets in rats also afforded protection, and another step forward was taken when it was found that radiated cholesterol added to a rachitic diet also conferred immunity toward rickets. Since cholesterol is a ubiquitous substance so far as living cells are concerned, it was easy to bring the phenomena of light action and cholesterol action together by assuming that light *per se* was effective because of its activating action upon the cholesterol in the skin.

It then became a matter of interest to discover the nature of the action of light upon cholesterol which gave the latter its antirachitic property. It seemed a foregone conclusion that cholesterol must be the parent substance (the provitamin) of vitamin D, since those investigating the problem had been careful to obtain cholesterol of presumably absolute purity. It seemed as though ultra-violet light must either produce some obscure change in the cholesterol itself or cause some active substance to be formed from it. It was even conceivable, in a vague kind of way, that a portion of the energy of the light used might be stored by cholesterol, later to be given up to the animal and to produce the antirachitic effect.

Finally, however, it was discovered that not every sample of cholesterol could be converted into an antirachitic agent by ultra-violet light. When cholesterol, for example, was first converted into a chemical derivative, cholesterol dibromide, which was then changed back to cholesterol, the substance so obtained, though identical so far as a chemist could determine with the original substance, was no longer activatable by light. Other methods of treating cholesterol also led to the formation of products which could not be activated. It was natural, therefore, that the view should appear that perhaps the cholesterol which had first been used was not as pure so had been believed, that possibly the active agent might be a contaminating substance so similar to cholesterol that in the processes of purification it was not eliminated. Rosenheim and Webster, of the National Institute for Medical Research in London, became convinced of this

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through their experience with cholesterol purified by the dibromide method mentioned and called the hypothetical provitamin "vitasterol." They communicated their experience to Windaus in Göttingen, who had become interested in the problem through Hess of New York, who, simultaneously with, but independently of, Steenbock of Wisconsin, had discovered the activating effect of light upon various foodstuffs. Windaus, to whom much of what is known concerning the chemistry of sterols (to which group of chemical substances cholesterol belongs) is due, suggested that a sterol called ergosterol might be the real provitamin of rickets, the vitamin itself being formed from it by the action of ultra-violet light.

When this view was put to the test by Hess and Windaus, Rosenheim and Webster, and since by many others, it was found that ergosterol when radiated did actually confer immunity to rickets and cured rickets already developed. At the present time, therefore, it is current opinion among those working at the problem that ergosterol is the provitamin of rickets. Investigation of a number of compounds closely allied to ergosterol has proved them to be non-activatable; hence the view appears justified that ergosterol is the specific parent substance of vitamin D.

The sterols fundamentally are alcohols, but their relation to ordinary alcohol is exceedingly slight. The molecule is much more complex than that of ethyl alcohol. A complete formula for ergosterol cannot be written at present. It is what the chemist calls an unsaturated compound, there being double bonds between some of the carbon atoms which make it a rather reactive compound. One of its most useful attributes is the fact that when ultra-violet light is passed through a solution of it some of the rays are absorbed, forming so-called "absorption" bands. These are quite characteristic and there is reason to believe that it may be easier to determine the vitamin D content of foodstuffs by means of the spectroscope than by experiments with animals or by a chemical method for the determination of ergosterol.

The nature of the change produced in ergosterol by ultra-violet light which converts it into the actual vitamin is at present wholly unknown. Likewise, the action of the vitamin in the body is largely unknown though it has been suggested by Hess that its action may be indirect, through stimulation of the parathyroid glands, thus raising the calcium content of the blood, which is low in rickets. That irradiated ergosterol does raise the calcium content of the blood, there is no doubt, and that it may do so through a mechanism involving the parathyroids is conceivable.

It was at first believed that there was no danger in administering an excess of vitamin D, but recently this view has been questioned. Following very high dosage excessive laying down of calcium in some tissues has been reported and Hess states that in children fever and a peculiar state of drowsiness have been observed occasionally. It is suggested by Hess that 0.5 mg. of ergosterol be used as a prophylactic and 1.0 mg. for the average case of rickets, both being daily doses. These are equivalent to about 7 and 14 teaspoonfuls of a good preparation of cod liver oil. Ergosterol is therefore about 15,000 times as efficient as cod liver oil.

Ergosterol, probably through its effect on the level of blood calcium, is quite as effective in tetany (including tetany in adults) as in rickets, and favourable results have been reported in osteomalacia.

R. L. STEHLE

## AVERTIN ANÆSTHESIA

SINCE the spring of 1927 numerous papers and references have appeared in the German medical literature concerning a new general anæsthetic, at first called E 107 and later "Avertin." It is a product of the pharmacological division of the dyestuff industry, has been supplied for trial to a number of hospitals, but thus far has not been released for general use.

Chemically avertin is tribromethyl alcohol ($CBr_3CH_2OH$), a crystalline compound soluble in water to the extent of 3.5%, the solution undergoing decomposition when heated to 60°. It is detoxicated rapidly in

the liver by conjugation with glycuronic acid (116.6 grm. have been given in seven days in a case of tetany, successfully treated, without noticeable damage). Injury to the liver and kidneys seems to be practically nil.

Avertin is administered rectally in aqueous solution. Sleep ensues usually in from three to ten minutes without the appearance of any unpleasant symptoms and lasts for about two hours, being then followed by what is referred to as an after-sleep lasting for several hours. On awaking there are no unpleasant recollections, and postoperative vomiting, headache, and salivation are practically absent. Patients who have been subjected to both ether anæsthesia and avertin anæsthesia have had no hesitation in stating preference for the latter. However, the opinions of surgeons have not been unanimous in favour of avertin. A number of deaths have been attributed to its use and rather numerous cases of alarming circulatory and respiratory depression have been reported.

When the fact is taken into consideration that the early use of avertin was necessarily of an orientating character it would appear that these early unfortunate experiences should not be allowed to weigh too heavily against it. Indeed a change of view has taken place with regard to its probable field of usefulness, and it may be that, while avertin will doubtless not turn out to be a complete substitute for ether, it may find a more modest but still useful place among anæsthetics. In the beginning the attempt was made to use avertin alone and in all cases as the sole anæsthetic agent. It was soon found, naturally, that the same dosage (on the basis of body weight) was not always equally effective, that the higher doses (up to 0.2 grm. per kilo), often necessary to produce complete muscular relaxation, sometimes produced serious falls in blood pressure and occasionally temporary cessation of respiration. By using smaller doses it was observed that, while complete surgical anæsthesia was obtained only part of the time (in approximately 50 per cent of the cases), the amount of ether required as a supplementary anæsthetic was often so small that the recovery period resembled that of a good case of avertin anæsthesia rather than that of ether anæsthesia. Of course when the quantity of ether used was large its post-operative actions became evident. The procedure of starting with a small dose of avertin and then administering additional amounts to produce surgical anæsthesia has not found favour. At present 0.1 grm. of avertin per kilo is not exceeded by numerous surgeons, some ether then being necessary in many instances.

In the beginning, in addition to deaths from circulatory and respiratory depression, several deaths also occurred from local intestinal damage. This appears to have been due to the use of solutions heated to too high a temperature in their preparation, the dibromacetaldehyde formed being injurious locally. Since this danger has been known and avoided practically no intestinal damage has been noted. Other ill effects which a few surgeons have attributed to avertin have been post-operative excitement and increased bleeding, but these opinions do not seem to be shared by the great majority of those who have used it.

Theoretically, avertin may be objected to on the score that once given its action cannot be recalled. This argument loses its force somewhat if the substance is used as above mentioned—in minimal dosage with ether as a supplement.

The long recovery period has been regarded by some as an advantage and by others as a disadvantage. The depression of post-operative pain may cause it to be regarded in the former light. On the other hand the patient requires considerable post-operative watching because of the possibility of breathing being interfered with by falling back of the tongue.

Obstetricians seem to be divided on the question of the applicability of avertin in parturition. Some find the position of the fetus to interfere with its administration, and others state that the solution is frequently ejected during the contractions. Just when to give it also constitutes something of a problem.

A few papers have appeared concerning the use of avertin in psychiatry. The observations have been quite favourable. Quick sleep is said to ensue in the most violent cases.

In the case of hyperthyroidism the opinions are conflicting. Some describe their experience in most favourable terms; others seem to have been less fortunate. R. L. STEHLE

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## REFLECTIONS ON MEDICAL WRITING

IT is the privilege of a retiring President to employ considerable latitude in choosing the subject for his final address. Dr. W. B. Howell has exercised this privilege freely—and delightfully—in the address we publish in this number of the *Journal*. His "reflections" are those of a specialist, it is true, but they are refreshingly free from the usually, though not at all necessarily, narrowing influence of specialization Instead, we have the outlook of one who is not only keenly alive to the real importance of the apparently trivial and frequently neglected details which accompany the giving of anæsthetics, but who also shows himself to be appreciative of matters quite remote from the subject of anæsthesia.

We cordially endorse his comments on the carelessness of expression which is so frequently evident in medical writings of the day. It is quite true that very few possess the gift of writing attractively, but how much less unattractive might a great portion of medical writing be made—to say nothing of how much less would be printed—if more pains were taken to use clear and exact English. The more one sees of medical writing the more surprised one is at the incoherence of the average writer, and also at the discrepancy between the excellence of his actual work and the confused expression of his thoughts. How can we avoid the conclusion that the thinking itself is confused?

One feels also that writing is often bald and uninviting because the writer does not really believe that it matters very much about the choice and arrangement of his words: if they convey something of his meaning he is content. How difficult is the task they are sometimes given to perform! It would be easy to add to the illustrative examples so aptly given by Dr. Howell. Take the following sentence which appeared in a recent number of a leading medical journal; "This disease (tularaemia) stands unique as the first truly American disease, and the guiding spirit that has made the accomplishment possible is Dr. Blank." Could we blame a disinterested reader of this statement for thinking that Dr. Blank had brought about this disease himself? Or, take this sentence from a paper on a surgical case: "In view of her improvement a posterior gastroenterostomy was done." The disinterested reader again might conclude that the woman would have done better *not* to improve.

On no point are we in more heartfelt agreement with Dr. Howell than on the gross distortion of the word "pathology" to its indefensibly slipshod use as a synonym for disease itself. Where indeed shall we stop in the development of such inaccurate terminology? We are surprised that Dr. Howell, in forecasting the changes in the Prayer Book which might be expected to result, did not suggest that the rhythmical beauty of the phrase "in sickness and in health" would probably be replaced by the cacophony of "in pathology and in physiology."!

This is a *reductio ad absurdum*, but if the would-be author persists in letting his sentences run loose he must not be surprised if they sometimes appear absurd to those who watch their antics. Still less should he be surprised at failing to make his meaning clear if he mutilates his language by a slothful indifference to the accepted meaning of its words. H.E.M.

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## A TERCENTENARY THOUGHT

THREE hundred years does not seem to be a long time in retrospect. It does not take us back to the discovery of America or even to the founding of Port Royal or Quebec, And, yet, less than three hundred years ago, men suffered under the thraldom of authority, ecclesiastical and other, to an extent which can scarcely be realized today. It is now three hundred years since Harvey gave "De Motu Cordis" to the world. It was published after years of hesitation, after the main features had been expounded to physicians, medical students and scientists, and against the advice of Harvey's best

friends. There was much fear of offending dignitaries of Church and State. Perhaps because of this, but more probably because of the promise of better sales, Harvey went to Frankfurt for a publisher. It is unlikely that he chose a foreign publisher because of timidity. We read that Harvey, who was court physician to Charles I, accompanied that monarch into the field of battle at Edgehill, that he became sated with the spectacle of battle, and while the fighting was most severe he sought out the shade of a hedge where he promptly became engrossed in the reading of a work on "Generation." A man who could sit quietly reading while a furious battle was being waged about him was unlikely to have much fear for personal safety. There is some reason for the belief, moreover, that the caution which Harvey showed was due to reasons of state, for he was an intimate of the Court, rather than to fear of personal suffering as a result of publishing a work which opposed all the current teaching about the function of the heart and blood vessels.

The publication of the book created a storm, and Harvey was vigourously denounced in all quarters. Gradually, however, there came a realization of the reasonableness and importance of his teaching, but, while he gained many adherents, it was not until after his death that Malpighi could demonstrate microscopically that Harvey had really contended for the truth.

"De Motu Cordis" was published in 1628. In the three hundred years which have elapsed, a great change has come over mankind. No book of such momentous importance has since been published. Today, of the making of many books there is no end. There is no fear that the presentation of novel views will create hostility of either Church or State. We are very free, but are we much better off? It is possible that earlier publication of "De Motu Cordis" might have proved beneficial to mankind. On the other hand, it is probable that it would be of general advantage if many of the books being published to-day were withheld from some years for deliberation and for the amendment which such deliberation would likely bring about. Few have the patience of Mortgagni, who waited until he was well advanced in years before giving his great work to the world. It is just possible that keener scrutiny and franker criticism of new books would have a restraining influence upon our impetuous authors. As it is, we really suffer from lack of restraint, and while we scarcely wish a return to the conditions of Harvey's day, we might be the better for some control. Certain it is that the freedom we profess to enjoy requires each of us, in the course of his reading, to winnow out much chaff, and to be content with less than the expected amount of wheat. If the present tendency persists, what will the outcome be?

W. H. HATTIE

## OUR FATHERS

The Roman gather'd in a stately urn
The dust he honour'd—while the sacred fire,
Nourish'd by vestal hands, was made to burn
From age to age. If fitly you'd aspire,
Honour the Dead; and let the sounding lyre
Recount their virtues in your festal hours;
Gather their ashes; higher and still higher
Nourish the patriot flame that history dowers,
And, o'er the old men's graves go strew your choicest flowers.

SOMETHING of the spirit voiced in a poem by the great Nova Scotia statesman, Joseph Howe, of which the above is the concluding verse, led the medical profession of the Bluenose province to a notable celebration during the week of October 15th. The occasion was the seventy-fifth annual meeting of the Medical Society of Nova Scotia, when a number of medical events were very happily combined, including the diamond jubilee of the Dalhousie Medical Faculty. Naturally, such events created an atmosphere of retrospection, and men reminded themselves and one another of the worthies of other days, who were pioneers in the Society and in the Medical School. Some of the difficulties which had to be overcome were spoken of, but how can we of this day estimate the courage, the faith, and the perseverance needed to win through in the pioneering times!

Perhaps, because of unwillingness to admit inferiority, we sometimes endeavour to comfort ourselves by professing that life was

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never before so complicated or so difficult as at the present time. We almost envy the serenity of the age when science moved but slowly; slowly, in contrast to the mad haste with which it now bounds from place to place, inciting us to furious effort to keep the moss off our backs. Even though our forebears moved in a circle ("with much iteration and small progress," according to Francis Bacon) just as we do, we like to feel that their pace was slower than ours and therefore less conducive to dizziness. If there is some uncertainty about this, we can assert positively that never before the birth of this century were the nerves of medical men flayed by the flaunting of pictures of rats fed on devitaminized diets. Our forebears were spared such horrors, didn't even dream of vitamins, and had no worries about calories. When they used the lancet (*magnum donum Dei*, as it was termed by Rush) it was seemingly with a delightfully cheerful abandon; they gave little thought to transfusion; and the "matching" of blood did not concern them in the least. Nor did they have to face the bewildering problem of how to vaccinate a girl where it would not show. Because of such things, we say they lived the simple life, and fancy ourselves to be much more "put to."

The early meetings of the Medical Society of Nova Scotia are recorded in singularly legible hand-writing which really looks like copper-plate. Many of the s's bear a striking resemblance to our f's; otherwise there is nothing to suggest that the physicians of seventy-five years ago were not men of like passions to us. They had no inkling of the enormous strides which were to be made in three-quarters of a century, but they were zealous to improve the status of the profession and to increase its usefulness to humanity. And the story of the beginnings of the medical school at Halifax is one of heroic struggle and sacrifice such as could be maintained only by men of enduring faith and almost prophetic vision. It is well that we should look back over the records of these early days and of the men who laid the foundation of a structure in the building of which we are privileged to share. Some of our smugness departs from us as we learn of the difficulties the "old men" had to overcome, of their high sense of professional honour, and of the sheer determination with which they faced a future of which they could hardly feel confident. Because of the trials and struggles and triumphs of these men we have a goodly heritage—the lines have fallen to us in pleasant places. When we recount their virtues we merely acknowledge a debt we cannot pay. Surely the least that we can demand of ourselves is to fitly aspire and honour the dead by reverently cherishing their memories, and to keep the torch they transmitted to us alight and aloft until we must pass it on to our successors. This sentiment evidently played a part in determining the program for the Bluenose celebration, which provided not merely thought upon the past but instruction and inspiration for the future. The celebration was admirably conceived and carried out in a way which won the unstinted plaudits of those in attendance.

W. H. HATTIE.

## Editorial Comments

### CANADIAN PUBLIC HEALTH ASSOCIATION, SEVENTEENTH ANNUAL MEETING

The Canadian Public Health Association held its annual meeting during the week of October 8th, in the city of Winnipeg. This Association is an organization largely made up of those specifically engaged in the field of preventive medicine. With the exception of one meeting of the Section of Public Health Nursing, and one meeting held by the Section of Laboratory Workers, the sessions were of a general character, and the subjects presented for consideration, while covering every phase of public health activity, were of sufficient general interest to demand the serious discussion of those in attendance. Particularly true was this in the case of the report of the Committee on Regulations governing Communicable Disease Control and the symposium on County Health Units. There seemed to be no conflict of opinion among those present as to the early necessity of a change in our method of public health organization as it applies to rural and small urban communities; and there existed an equal measure of dissatisfaction with the measures set aside in some of the provinces for dealing with certain of the minor communicable diseases.

The meeting, which was probably the most representative one held by the Association in recent years, brought together members of the Association from seven of the nine provinces in the Dominion, and with almost one-half of the registration being from outside the Province of Manitoba, was deemed to be sufficient evidence of the continued usefulness of the Association to warrant the purchase of the present organ of the Association, namely, *The Public Health Journal*, which, commencing January 1, 1929, will be edited and published by the Association itself.

Both the city of Winnipeg and the Province of Manitoba evidenced their interest in the Association by their hospitality, and the members carried away from the meeting not only much that was of profit but recollections that were pleasant in the extreme. Much of the credit for the success of the convention was due to the efforts of the local Committee on Arrangements, which was headed by The Honorable W. E. Montgomery and Dr. Douglas.

J. T. PHAIR

## ANNUAL REPORT OF DEPARTMENT OF PUBLIC HEALTH OF NOVA SCOTIA*

Some interesting facts are to be found in the recently issued report of Dr. A. C. Jost, late Provincial Health Officer for Nova Scotia. The general death rate is 11.9 per 1,000 which is one of the lowest recorded for the province, and the tuberculosis death rate has fallen below that for the previous year. On the other hand the infant mortality has been higher than in past years, due largely to conditions in the mining areas. There is very wide variation between the rate in the mining town of Glace Bay, for example, where it is 195.6 and the agricultural town of Menton where it is 36.3. The report shows clearly how the rates are to be accounted for.

As regards the birth rate, Dr. Jost makes the following comment:

"A feature quite noticeable in the records of the province is the evidence that it is participating in the very widely experienced reduction of the birth rate, which has caused comment almost wherever records are being kept. With each year since 1921-22 there has been a reduction in the number of births taking place in the province, so that during the year the number of reported births was smaller than had been reported for many years."

* *Public Health Journ.*, 1928, xix, 282.

Another point brought out by Dr. Jost is the alteration in the ages of the mothers. Most of the decreases in births (about 85 per cent of the total decline) has been amongst mothers up to the age of thirty; there is now a higher percentage of births amongst mothers aged 31 and over. No attempt is made to explain these variations, and it is stated that similar changes have been noted in other places. There can be little doubt that modern industrial and social conditions are partly responsible for marriages taking place somewhat later in life, and to some extent in delaying the bearing of children.

But social conditions are not the only factors which influence variations in a country's birth rate. In the discussion at the British Medical Association's meeting this year, on the subject of "The falling birth rate," it was shown that from a biologist's point of view a decline in the birth rate was something that was expected to occur in the natural course of things, in all populations.† In Dr. Crew's words, "To the biologist a falling birth rate is nothing but the sign of the approaching end, not of a people or of a culture, but merely of a population growth-cycle."

H.E.M.

† *Brit. M. J.*, 1928, ii, 477.

## THE JOURNAL OF THE COLLEGE OF SURGEONS OF AUSTRALASIA

The College of Surgeons of Australia has published the first number of the journal which is to record their activities. It is intended also, however, to make this journal the medium for publishing original papers which will reflect the progress of surgery in Australasia. We note with interest in the present number articles on the development of similar colleges in England, Ireland and the United States.

We extend our congratulations to the editorial board of this publication and our best wishes for its success. The first number has set a high standard of excellence, both in material and in general appearance and if this standard be kept up the success of the venture is assured.

H.E.M.

We regret to hear, as we go to press, of the severe illness of Prof. Oskar Klotz, of Toronto, on his way home from Africa. We are glad to learn that the worst is past. His recovery, however, it is said, will be slow.

A.D.B.

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# Special Articles

## THE RECENT TRIP OF THE CANADIAN TUBERCULOSIS ASSOCIATION REPRESENTATIVES

BY J. H. ELLIOTT, M.D.,

*Toronto*

On August 24th, a party of thirty-two physicians, members of the Canadian Tuberculosis Association, sailed from Montreal on the White Star *S.S. Regina,* to study various phases of antituberculosis work in Great Britain, France, Switzerland and Italy. The objectives were the Sixth Conference of The International Union against Tuberculosis, held at Rome September 24th to 27th and the Annual Meeting of The National Association for the Prevention of Tuberculosis, held in London, October 15th to 16th. An itinerary was arranged whereby the party was able to observe many and varied activities in the countries visited.

That such a large party from Canada should attend the congress was made possible through the action of the Sun Life Assurance Company of Canada, in placing at the disposal of the Canadian Tuberculosis Association thirty scholarships to be awarded to tuberculosis workers, selected from each of the provinces of the Dominion. The party included sanatorium physicians, directors of clinics, tuberculosis officers (diagnostic services) of various provincial government, and included the secretary and president of the association. With a few exceptions, the men were accompanied by their wives or other members of their families, making in all a group of nearly seventy travelling as a party.

From the day of their landing at Liverpool when they were first the guests of the Dean and Chapter of the Cathedral, and, then, luncheon guests of the Corporation at the Liverpool Open Air Hospital, until eight weeks later, previous to re-embarking for Canada, when they were officially received by the Lord Provost and Corporation of the City of Glasgow in the Satinwood Room of the City Chambers, with the Under Secretary of State for Scotland present, the party were received and entertained with the utmost courtesy and kindness.

The itinerary, with over one thousand miles of motor trip, included Great Britain, France Switzerland and Italy. The impressions of representative members indicate that the tour has been not only extremely interesting but most instructive. The attention of the medical members was directed to matters pertaining to tuberculosis and to various public health aspects both in administration and practice.

Among the problems investigated were the following: municipal housing schemes, sanatorium construction and equipment, diagnostic and therapeutic measures, post-sanatorium care of the tuberculous, infant and child welfare, special measures and activities to protect children from infection, governmental and voluntary contributions to maintenance and construction programs, public health activities and administration, as exemplified in such cities as Birmingham, London, Paris, Nancy, Edinburgh and Glasgow. Great Britain's national tuberculosis scheme was outlined at the Ministry of Health, Whitehall, by Sir George Newman and Dr. F. J. H. Coutts. In France the national and departmental plans were presented by the Comité National de Défense Contre la Tuberculose. In Italy the national scheme with the outline of compulsory insurance against tuberculosis was presented to the International Conference in the reports of the Italian National Fascist Federation against Tuberculosis.

Officially received or entertained as guests of the Corporations of great cities, such as London, Liverpool, Birmingham, Glasgow, Orleans, Paris and the Department of the Seine, Nancy and the Department of Meurthe-Moselle, and by the Governor of Rome, every facility was offered for the study of all that related to the objects of the tour.

An important feature was a daily conference on the ship eastbound, with general and helpful discussion of such subjects as sanatorium construction and costs, sanatorium administration and costs, travelling clinics, tuberculosis in childhood, Calmette's vaccine, and tuberculosis progress in Canada. On the return voyage, in spite of tempestuous seas, opportunity was taken to crystallize opinions and observations made on the tour in relation to such subjects as government aid, national schemes, milk-borne tuberculosis, sanatorium construction, protection of the exposed child, treatment of non-pulmonary forms of tuberculosis, orthopædic practice in bone and joint infections, natural and artificial heliotherapy, colonies and after care, clinical practice in pulmonary disease, including graduated exercise, sanocrysin, and occupational therapy.

Great Britain offered an interesting field for the observation of methods of treatment of the non-pulmonary forms of tuberculosis. For example, in Glasgow the death rate from pulmonary tuberculosis is 92 per 100,000 and from non-pulmonary, 36 per 100,000. This city has

under observation 4,900 non-pulmonary cases. It has 450 beds for non-pulmonary cases in hospitals and sanatoria and is building at Mearnskirk for 330 additional beds. Surgical operative interference in bone and joint tuberculosis is less frequently seen now than a few years ago. With the recognition in Canada, as elsewhere, that tuberculosis is a general disease and rarely local, more and more of such cases are referred to our Canadian sanatoria for general care and prolonged rest treatment. In arranging the tour this phase of orthopædic treatment received special attention. Special clinics were arranged by the staffs of many institutions under such well known surgeons as Sir Henry Gauvain, at Alton and Hayling Island; Mr. Girdlestone, at the Wingfield Orthopædic Hospital, Oxford; Mr. Jardine, at Edinburgh; Mr. Watson, at Robroyston, Glasgow; T. Hartley Martin at Leasowe, Liverpool; and Dr. Rollier at Leysin. This highly specialized instruction was much appreciated, and with other lectures and demonstrations, such as that given by Sir St. Clair Thomson on laryngeal tuberculosis, cannot but be reflected in practice in Canada.

It was noted with interest that a steadily increasing number of sanatoria are establishing workshops with various industries, on an economic wage, for patients able to do a part day's work but unable to compete in the general labour market. In connection with a few sanatoria these have grown into colonies or village industries where the patient or ex-patient is able to live with his family and be self-supporting. The scheme presents many difficulties. It has proved most successful where the patients are ex-service men who have a pension. This with their wages or earnings from part time work enables them to support a family in comfort, while working under conditions which lessen the probability of relapse.

In France no opportunity was lost to secure information as to the results of an extensive movement to prevent tuberculosis by the placing of contact children in tuberculosis-free homes, the method first devised by Grancher and modified by Léon Bernard and his co-workers. Visits to the clinics at the Laennec Hospital, a train trip to Orleans, and a motor trip of sixy kilometres through the countryside south of Orleans, gave the party a practical demonstration of the truth that prevention is better than cure. Whereas many of the children who remain in an infective environment die of tuberculosis, those who are removed for a period of four years show no deaths from this cause, and the mortality from all causes is greatly lessened.

Calmette's method of preventive vaccination of contact children was a subject of great interest. Clinical workers in France seem to have rather generally accepted his claims and his evidence. In England the general verdict is "not proven." Petroff, of Saranac Lake, believes that the whole experiment must be gone over carefully before the results claimed can be accepted. We believe the League of Nations has drafted a basis of statistical inquiry, which, if followed over a sufficient period, will aid in arriving at a conclusion as to the efficacy of B.C.G.

The application of natural and artificial heliotherapy in the treatment of non-pulmonary and pulmonary tuberculosis was the subject of extensive inquiry. The Finsen lamp was found to be generally used, and successfully used, in lupus, a rare disease in Canada. In the use of natural and artificial heliotherapy the patient is also subjected to the effects of air exposure and it appears difficult to arrive at any basis of actual valuation of these two therapeutic agents. In Scotland, the air bath, with but little direct light exposure, appears to have given excellent results. Further experimentation and investigation appear necessary to settle some controversial points. Heliotherapy, natural or artificial, is capable of doing immense harm if improperly applied, and it seems fitting to issue a word of caution to the public as to the over-use, and indeed dangerous use, of such powerful agents as sunlight and various forms of artificial light treatment. One strict rule was found to be universal, that direct exposure to the sun is never to be used in febrile cases.

That Italy is wide awake to the importance of national action against tuberculosis is indicated by the fact that in addition to a definite public health program a yearly appropriation is made of 300,000,000 lire for tuberculosis work by the Mussolini government. His Excellency Benito Mussolini presided at the opening of the conference, and was also at the reception given by the President of the Fascist Federation against Tuberculosis, when a number of the delegates were presented. In addition to the three leading discussions, lectures were given by Prof. Brauer on "The surgery of pulmonary tuberculosis," by Prof. Morelli on "Forlanini and pneumothorax," by the Minister of National Economy on "Compulsory insurance against tuberculosis in Italy," and the Italian Department of Health projected a most interesting and instructive film, illustrating the active work of the department in industrial hygiene, municipal hygiene, and antituberculosis work in Italy. Canadian delegates were nominated to take part in discussions on the program and made excellent contributions in the short time allotted.

At the meeting of the National Association for the Prevention of Tuberculosis in London the Canadian contributions were of a very high character and reflected great credit upon Canadian medicine.

The members of the tour have returned with

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a vast amount of valuable information, some of which, it is hoped, will be made available through the columns of the *Journal* to its readers. Some practical measures applicable to Canada and its provinces should be evolved from such a comprehensive plan of study and investigation as that undertaken by the Canadian Tuberculosis Association.

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## ACUTE CONDITIONS IN THE LOWER ABDOMEN OF THE FEMALE*†

BY W. W. CHIPMAN, M.D., F.R.C.S.ED.,

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[This address is reprinted in full from the *British Medical Journal*, 1928, ii, 475.—ED.]

Two general considerations:

1. The genital tract in the female is a hollow cylinder, bifurcate above, which communicates directly between the skin surface and the peritoneal cavity. A direct channel, or avenue of communication between a contaminated skin surface and this mesothelial space! (Victor Bonney.)

And this genital tract is subject to many vicissitudes. There are the traumata of menstruation, of childbirth, and abortion; and the dangers associated with venereal disease. It is an imperfect world. Hence in the female the frequency of acute infections of the lower abdomen.

2. The peritoneal cavity is one of the three large enclosed chambers of the body—it is the largest of the three, the largest lymphatic space. Its absorptive surface is immense, compared either with the pleura or the subdural space. Hence the danger of an acute infection of this large space. The peritoneal cavity—an organismal Valhalla — a perfect incubation chamber.

These acute conditions are sometimes grouped together under the term, "The acute abdomen," "The emergency abdomen," or "The abdominal emergency." The point of the emergency concerns both the patient and the surgeon, and any given individual has only one abdomen. To open or not to open—that is the question, a decision oftentimes of very grave importance.

I need not tell you that the opening of the abdomen should never be lightly or carelessly undertaken. I object to the term of "giving the patient the benefit of an exploration." "Open and see" is a foolish behest. If too often done this may be interpreted as "condemning the patient to an added injury." In surgery we must remember the three "C's"—caution, care, as well as cutting. You will also agree that before any abdominal operation is undertaken a vaginal examination, a rectal examination, or both, should invariably be made.

In general terms, these acute conditions may be grouped as follows:

1. Hæmorrhage, a concealed hæmorrhage.
2. Acute infections, usually of the uterus, the Fallopian tubes, or the appendix.
3. Perforation of the bowel or other hollow viscus—perforation or rupture.
4. An acute bowel obstruction.
5. Strangulation of any organ or neoplasm.
6. The passage of a ureteral stone.
7. A uterine abortion, spasmodic dysmenorrhœa, or even a bladder retention.

For the gynæcologist the most common of these are a ruptured ectopic pregnancy, an acute appendicitis or salpingitis, a uterine infection, strangulation, thrombosis, or an ovarian cyst, or uterine fibroid with a twisted pedicle.

Speaking in a general way for all these conditions, some of them are at once recognizable—he who runs may read—while others require a most painstaking differentiation.

May I first make two pleas of a preliminary character? The first concerns the wisdom of a careful case-history, for in many of these conditions the previous history, or the story of the onset, may afford the clue. Sir James Mackenzie pointed out that in difficult cases the diagnosis frequently depends more upon an exact history than even upon a careful examination. My second plea is always to pass a catheter, and to examine the resulting urine.

I shall now discuss in a general way the various signs and symptoms of these acute conditions.

Pain is always the outstanding symptom. It may well be defined as Nature's expostulation to an injury, and its function is a protective one. La Rochefoucauld has told us that pain is the greatest liar in the world, but it is wise not always to believe this. At times it is a liar; and so for the matter of that are all men, and a few women; but I believe it is wise to take the following advice: "Never open the abdomen for pain only"—for pain only and with no accompanying signs or symptoms.

The most important sign, perhaps, is the face —the abdominal face—the facial expression, and this never lies. So often it is the anxious peritoneal face, apprehensive. In hæmorrhage it is pallid, often waxy, and the muco-cutaneous line of the lip is unduly sharp and pronounced. There is the grey ashen face of shock, and the flushed or cyanotic face of a severe toxæmia. The severity of the lesion can often in this way be immediately inferred.

And there is the attitude of the patient, her decubitus and her mobility. If the lesion be

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* A paper read in the Section of Obstetrics and Gynæcology at the Annual Meeting of the British Medical Association, Cardiff, 1928.

† Reprinted from the *Brit. M. J.*, 1928, ii, 475.

acute and intraperitoneal, the patient lies invariably upon her back, and with her knees flexed. Any movement is a torture. On the other hand, if the patient moves readily, and turns easily on her side, there is no grave lesion within the abdomen. I have often found this test of asking the patient to turn over on her side of great service.

So far, you will observe, I have not mentioned either the temperature or the pulse rate. I shall refer to them later in their special place. Let us now consider the three commonest of these lower abdominal conditions. These are hæmorrhage, acute infections of the appendix or Fallopian tube, and a strangulation or thrombosis of a pelvic organ or neoplasm.

### 1. HÆMORRHAGE

The first of these is hæmorrhage. The common site, of course, is a ruptured tubal pregnancy. A severe hæmorrhage may arise, however, from other situations—for example, from a ruptured Graafian follicle. Three years ago Primrose of Toronto reported six such cases. I have met one in my own practice, and there was a large loss of blood. Again, a varicocele may rupture, and a uterus ruptured during labour, or perforated even by a sound or curette, may lead to a severe intraperitoneal hæmorrhage. The history here is all-important.

Usually the condition is that of ectopic pregnancy. As you know, the history of the pregnancy, the amenorrhœa, is often indefinite. Rupture occurs usually between the seventh and the twelfth week, and this rupture may be large or small. The dangerous situations are the isthmus and the cornu of the uterus. If large, the hæmorrhage is usually severe—the cataclysmic case with pallor, subnormal temperature, rapid and thready pulse, air-hunger, cold and clammy extremities. The abdomen is tumid and tender, frequently tympanitic, for the bowel floats; the blood has a high specific gravity. The pouch of Douglas may be full and depressed, and a feeling of crepitation may be present as the finger breaks the blood-clot. There is frequently the history of a dagger-like thrust of pain, with immediate faintness or collapse. A uterine trickle of blood is often manifest, together with rectal tenesmus, and some bladder strangury. In these severe cases the diagnosis is easy, and does not require the taking of a hæmoglobin index. The abdomen should be opened at once, and venous transfusion, of citrated blood or a glucose saline, carried out.

It is well to remember that if such a patient survive and be not seen till the fourth or fifth day she may present all the signs and symptoms of a widespread peritonitis—namely, fever, a rapid pulse, a distended abdomen with paralytic ileus, regurgitant vomiting, with a marked leucocytosis—the picture of late bowel obstruction.

In a so-called chronic case—the "leakers"—while the diagnosis is less urgent, it is sometimes more difficult to make. There is the history of repeated attacks of sharp, lancinating pain in the lower abdomen, an interval of twenty-four or forty-eight hours, or even some days, between them; slight uterine hæmorrhage, no marked fever or great disturbance of pulse rate; a lateral mass on one or other side of the uterus, increasing rapidly in size. Mark such a case. If a decidual cast is shed from the uterus—this occurs in only about 20 per cent of the cases—the diagnosis is clear.

There is in these cases a degree of anæmia; there is often a marked leucocytosis (De Quervain contends that a leucocytosis of 20,000, where signs are slight, points to a hæmorrhage rather than to an inflammation). A hæmoglobin index is of small value. Two years ago the hope was expressed that a low and falling index would reveal a concealed hæmorrhage. Unfortunately, this is not so.

We rely in these cases upon the history—the recurrent attacks of pain, the uterine bleeding and mass, at first lateral to the uterus, which increases rapidly in size. It is always well to bear that in mind. If in doubt, an exploratory colpotomy is the indication, and at once settles the matter. If blood is found, the abdomen should be opened from above and the tubal sac removed.

### 2. ACUTE INFECTION OF THE APPENDIX OR FALLOPIAN TUBE

The second common condition is an acute infection — an infection of either the vermiform appendix or the Fallopian tube. The distinction between these two infections is all-important, for an inflamed appendix should be at once removed, certainly within the first twenty-four hours; while to open the abdomen for an acute salpingitis is nothing short of a disaster.

The inflamed appendix we all know, with its more or less definite syndrome, outlined first by Reginald Fitz, and its surgical treatment indicated by Charles McBurney of New York. Professor Wilkie of Edinburgh emphasizes an important pathological and clinical distinction. He says:

> 'There are two main types of acute appendicitis: (*a*) the one infective, an organismal invasion of the lymphoid tissue, the inflammatory type; here there is pain, more or less continuous, but not severe, fever, increased pulse rate, localized tenderness, and a marked leucocytosis; and (*b*) the obstructive type, fæcal concretions often present, blocking of the circulation, and sudden gangrene, and perforation. Here the pain is intense and spasmodic, the fever is slight, the pulse is often rapid—the abdominal facies—and no great increase in leucocyte count.'

These are two main divisions, and I think they are well founded.

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The common infection of the Fallopian tube we are all familiar with. It is really a mixed infection, an acute exacerbation of a chronic condition. The chronic infection is a gonorrhœal one, rarely tuberculous, and the acute maleficent synergism is frequently due to the colon bacillus.

It is the distinction between these two acute conditions, the one of the vermiform appendix and the other of the Fallopian tube, that sometimes taxes our clinical acumen to the utmost. How shall we proceed to such a distinction? It is, I admit, an old story, but one that in our daily practice is ever new.

In a general way it may be said that in acute salpingitis the patient does not appear so ill; the temperature is often high, it is true, usually higher than in appendicitis, but the pulse rate is not correspondingly disturbed. The face is often flushed, but not to the same degree anxious or apprehensive. The function of the bowel is not so greatly disturbed, nausea and vomiting are not a feature, though there may be considerable distension; abdominal tenderness and rigidity are more diffuse and widespread. All this in a general way, the general rule if you like, where there are bound to be exceptions.

The history of the case—of the onset, or of previous attacks, a previous complicated puerperium, a one-child sterility, with depraved menstrual habit—may afford a clue. And then in our examination we always look for signs of a gonorrhœal infection. As I have said, it is an imperfect world. First, the signs at the vulvo-vaginal outlet; the chronic urethritis, with the pouting and œdematous tubules of Skene; the maculæ gonorrhœicæ at the opening of the Bartholinian duct—these are all signs that a gonorrhœal infection has passed that way.

If the infection be a Noeggerath's infection—a chronic gleet in the male—there will only be the chronic cervical catarrh and the immobility of the uterus—the uterus fixed in starch, as it were, and often with no definite appendage mass. Yet at this time the appendages are slightly enlarged and very sensitive, and the mere movement of the cervix uteri elicits severe pain.

With such a finding the diagnosis is an acute exacerbation of a chronic salpingitis, with a spreading peritonitis, and the indication is—*above all things do not operate.*

The situation in these cases was well summed up some years ago by one of your able southern surgeons, when he said, "In a gonorrhœal salpingitis, never operate in the acute stage; wait till the cold stage, and clear them out." Never operate till you are compelled.

In contradistinction to this clinical picture I think it is wise for us to keep in mind a typical attack of appendicitis. The history helps us here. There may have been previous attacks, but—

The pain is first felt above the umbilicus or in the epigastric region; it soon determines itself in the right lower quadrant. There is anorexia, or nausea, or even vomiting. There is tenderness over McBurney's point, which we remember is the base of the mesentery of the appendix—a lymphangitis. There is also some muscular spasm or rigidity of the right rectus or oblique muscles, with fever or quickened pulse rate, often not specially pronounced. There is a moderate leucocytosis — ten to twelve thousand — with polymorphonuclears predominating. If the inflamed appendix be near the brim of the pelvis a vaginal or a rectal examination shows a marked tenderness in the neighbourhood of the right sacro-iliac joint.

Such is a typical clinical picture of a catarrhal appendicitis. We can see at once how it differs from an acute salpingitis. When in doubt between the two *watch and wait*—hour by hour, not day by day.

### 3. Thrombosis, Gangrenous Organ or Neoplasm

Here the lesion is a definite venous thrombosis, or a twist in a pedicle. The common neoplasms that suffer this pathology are ovarian cysts of medium size, or a fibromyoma of the uterus, pediculated or intramural. Frequently the patient has been aware of the presence of the neoplasm. The pain is severe and colic-like, short in duration, and the tenderness is at first localized to the tumour surface; there is slight disturbance of temperature or pulse rate.

A careful examination discovers the neoplasm. If the thrombosis be extensive or the strangulation severe, and the patient be seen late, there are all the signs of a superadded peritonitis, the result of a colon infection. These three conditions mark the common acute lesions of the lower abdomen.

May I add here a word of warning in respect of pneumonia?—a pneumococcal infection, which may spread below the diaphragm and simulate even an appendicitis. My warning consists in this—a careful history of the onset. If a rigor has occurred, a chill, it is probably not appendicitis. In a series of 85 cases of appendicitis a chill was recorded but three times; so, if there is a chill at the onset, watch the alæ nasi (count the respirations), think of pneumonia, and make a leucocyte count. If the leucocyte count be over 15,000 in the first twenty-four hours the condition is likely to be pneumonia and not appendicitis.

A word or two concerning bowel obstruction—an obstruction of the lower bowel. I need not remind you to examine all hernial orifices. An intussusception is common only in the young or adolescent, and soon gives rise to a typical ileo-cæcal tumour and the characteristic bloody-mucus bowel discharge. A volvulus occurs rather

in the old, a rare left-sided lesion, which can usually be felt by bimanual examination.

The obstruction causes colic, with quiet intervals; constipation, of course, and, later, the antiperistalsis, may result in vomiting. A diverticulitis occurs usually in the pelvic or iliac colon, and diarhœa is a frequent concomitant—diarrhœa and fever.

A stone in the ureter or in the pelvis of the kidney may cause abdominal distension and vomiting, and not a few abdomens have been mistakenly violated. The onset of the pain, its distribution into the urethra or down the leg, frequent micturition, and blood in the urine may possibly identify it. If in doubt, an x-ray picture should be taken.

A good surgeon must first be a good physician—a mind broadly trained, and the hand narrowly. The function of the good surgeon is to diminish surgery in the world to-day.

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# Men and Books

## THE GREEK CONTRIBUTION TO MEDICINE

BY J. W. AULD, M.D.

*Calgary*

There is every evidence to prove that man has evolved from a natural or wild state, and his existence as a human type can be traced far back into the dim mists of time. The grades of culture represented during the process of his evolution may be classified as animal instinct, savagery, barbarism and civilization. Our general outlook upon the world contains a great mass of ideas and knowledge of which the origin is so remote and obscure that they may be described for the greater part as merely instinctive notions, and as far back as we can find any trace of man's existence we see evidence of some method of treating the sick. All through the ages man has been endeavouring to maintain his health and prolong his days upon the earth.

The idea of disease and the manner of its treatment varied with the social and intellectual development of the race. The greater number of mankind, even until a very recent date, regarded Nature as being peopled with demons and spirits. Primitive man recognized many superhuman beings who might control the agencies of disease. In ancient times the world was peopled with spiritual beings, and objects of Nature were deified and malign influences were assigned to them. Primitive priest, physician, and philosopher were one and worked together to control the dark mysteries of life. On account of the erroneous views of its nature the knowledge of disease remained very crude and primitive until a comparatively late date. Magic amulets, charms, and incantations were the chief weapons of defence against a malignant Nature, and he who presumed to treat the sick must first discover the nature of the spirit in possession, and could only succeed in driving it out or destroying it if he were powerful in magic or an expert in reciting incantations.

What we are accustomed to call civilization is of very recent date compared to man's existence here upon earth. Our known civilization begins with the Chaldeans and Egyptians, and was carried to its highest point by the ancient Greeks. It is said that about six thousand years ago man appeared on the banks of the Nile in a high state of civilization, and, for many centuries, to be "learned in the wisdom of the Egyptians" meant the possession of all knowledge. Here we see the beginning of many of man's most cherished beliefs, and among other things we find a growth in the knowledge of practical medicine. Passing on through the great civilizations of Egypt, Babylon, and Greece to our own time the knowledge of the agencies of disease has gradually been unfolded, and we thus come to the science of medicine as we see it to-day. All peoples have had their methods of treating disease, but the Greeks alone among the ancients practised a system of medicine, based not on theory but on observations accumulated systematically as time went on. They alone among the peoples of antiquity could look upon their healers as physicians; they were the first to grasp the conception of medicine as an art based on scientific principles, and an integral part of the science of man. The scientific principle first appeared among the Greeks, and was spoken of as the art. Out of mysticism, superstition, and religious ritual they went directly to Nature, and were the first to recognize its healing powers. They found that Nature contributes to the healing of our minds as well as of our bodies. They laid down the principle that all diseases are natural in origin, and to be cured not with charms or miracles but by natural means.

With primitive man and in the great civilizations of Egypt and Babylon the physician evolved from the priest; in Greece he had a dual origin, philosophy and religion.

The sources of Greek medicine have been associated with a few great figures such as Hippocrates and Galen, but we must recognize that these men were the representatives of a widely extended system. Greek medicine had many roots, the chief of which were in Egypt, Assyria, and Babylon. The foundation of Greek medicine is associated with the name of Hippocrates, but Greek medicine was by no means the product of a few great men. It was the result of centuries of carefully recorded and progressive experience. Even in Hippocrates' time the art of medicine

had a long and rational tradition behind it. As an art medicine had made great progress even before his day. Great minds had been studying the problems of Nature and of men long before Hippocrates, but he seems to have gathered all that was sound in the past history of medicine; his influence tended to the acquisition of all that was new and valuable, and to the casting off of all that was useless and superstitious. Hippocrates was called "the Father of Medicine," not altogether for his discoveries but because he laid down the principle on which that art was founded. In order to appreciate what he did, it is only necessary to glance at Babylonian and Egyptian medicine, or to become acquainted with the many systems common in his time. He rejected all that was useless, and founded a system based on reason and common sense. He recognized that diseases are part of the processes of Nature, that there is nothing divine or sacred about them; he was the first to recognize the healing powers of Nature, and was a great advocate of rest, pure air, exercise, and proper diet. He was a keen observer, and an active physician. He used few drugs, but placed his confidence in the restorative powers of Nature. The great contribution of Hippocrates to medicine was the art of careful observation.

One of the first medical schools of antiquity was established at Cos, an island of Greece, and here in the health temple Hippocrates practised the art. He decided that all diseases are abnormal natural conditions: he found that Nature alone often terminates disease and works a cure with a few simple medicines, and often enough with no medicine at all. The Greek health temples were quiet retreats where the sick, exhausted, and convalescent might gain the benefits to be obtained from pure air, fine scenery, sunlight, and regulated life. They were not unlike our modern sanatoria, and it is likely that cases of tuberculosis were benefited at such places. The Asklepieion or health temple in which he laboured was situated about two miles from the sea, at a point where the mountains rise gently from the gradual slope of the plains. The environment was both beautiful and exhilarating. A group of noble buildings erected in the unequalled architecture of Greece took nothing from Nature, but made her resources better available for man. Here the foundations of modern medicine were laid; here the modern process of careful record, case-taking, bed-side instruction and clinical lectures were practised, much in the manner in which we see it to-day. The methods of Hippocrates have formed the basis of many departments of modern advance. His dietetic principles, especially in fevers, are substantially those of the present day, and in many ways we have returned to his simple and natural methods of treating disease.

For sixteen centuries the civilized world thought that to retain health periodic bleedings were necessary, but for the last two centuries we have gradually been getting back to the teaching of the great master. We have discovered that the best results are obtained when we leave something to Nature.

Modern medical science includes bacteriology, chemio-therapy, and many other things which Hippocrates never thought of, and we would be foolish to abandon any one of our modern discoveries which go to make medicine what it is to-day, yet in some respects we might do well to take a glance back at Hippocrates. We in our age are apt to lay too much stress on bacteriological findings, and at the same time pay too little attention to the more vital part, the dissociation of the functional unity of the whole body. Unlike Hippocrates, we forget the human organism in our zeal to find out all about the enemy attacking that organism. It might be well at times to pay a little less attention to bacteria, and to give more thought to the raising of the individual immunity, both by artificial and by natural methods. We have learned that the invader finds it hard to gain a foothold when the defences are well organized; he flourishes when these are weak or temporarily inadequate. The Greeks believed in Nature as the healer of disease. They believed that human bodies are and normally remain in a state of health, and that on the whole they tend to recover from disease. In favour of this belief is the fact that there are not more than two or three microbic diseases in natural conditions, and there are no constitutional diseases in the system of wild Nature.

Modern medicine may be truly described as in essence a creation of the Greeks. They gave us our first start in rational medicine. But for ancient Greece the art of medicine could not have advanced as we see it to-day. It is hard to imagine what the state of medicine would be to-day without the works of these great men. The Greeks were the beginners of nearly everything; they were creators in the true sense of the word, and as no other people have been. The small country of Attica has given an art which all the world since has not surpassed. We are apt to wonder at times what these great intellects would have accomplished if their labours had been conducted under the same advantages which we in our time have the good fortune to enjoy. Handicapped as they were, in many departments they were unsurpassed until the nineteenth century. They were not only successful practitioners of medicine, but they were also advanced in the art of surgery. Descriptions are found in the Hippocratic writings for such surgical procedures as opening the chest for empyæma, and for trephining the skull in cases of fracture, two important operations of modern surgery. These operations, we are told, were often successful, for they were performed with skill and conducted in the pure air of the islands of Greece, far from the crowded centres, where the natural conditions were at their best. Many have wondered why the Greeks having achieved so much did not achieve a little more and antici-

pate modern science. One reason is that they were handicapped by the lack of the microscope, and other instruments of modern research; another is that Greek public opinion was hostile to dissection of the human body. It is the wonder of our age that the physicians of antiquity, though ignorant of the nature and but dimly aware of the existence of infection, could have accomplished so much. Without dissection, without any experimental physiology or pathology, and without any instrumental aid, the ancient Greeks advanced the knowledge of the cause of disease as far as it is conceivable that men in their position could do it. We thus come to realize the wonderful genius and vitality of mind of those whose works still live after twenty-five centuries, and the thought comes to our minds that it would be a great loss to the Medicine of our day of we were to forget the works of these great men. While we are employing our modern methods and testing out our present day inventions, let us at times look back to them; it may be that even yet they have something to give that might be useful to us. We do not realize how difficult it was for these great intellects, living in a world of superstition and traditional beliefs, to rise above them, and yet it has been stated that the period which intervened between the birth of Pericles and the death of Aristotle is undoubtedly the most memorable in the history of the world with regard to its influence on the subsequent destinies of civilized man. In the centuries from 500 to 300 B.C. the little barren country of Attica produced twenty-five illustrious men, a greater number than has ever been seen in the whole world in any two centuries since that time. It has been a severe misfortune to humanity that the high Athenian breed decayed and disappeared, for if it had maintained its excellence and had spread over the earth it is hard to imagine what great things it would have accomplished for the good of human civilization.

In the glorious days of Pericles the Greeks were remarkable for their constancy of purpose, and the steadfastness of their ideals. Their business was to carry everything they undertook forward to perfection; their aim was to lead the mind of man toward a knowledge of the truth, to spread sound and healthy ideas, to draw human beings from the paths of prejudice and passion, and to make reason the supreme guide to public opinion. The idea of service to the community was deeply rooted in the Greeks. Their aim was to be useful, to be helpful. The aim for the enrichment of life was exhibited in them as in no other people.

Medicine among the Greeks was a progressive study for a far longer period than has been the case in the Western world. Greek medicine first took on a rational spirit with the Ionian and Italo-Greek philosophers at the beginning of the sixth century B.C., and continued to make progress until the death of Galen at the beginning of the third century of the Christian era. It thus lasted eight hundred years. Our own system of scientific medicine has only lasted three centuries, at most, less than half the time that Greek rational medicine endured.

The earliest works that have come down to us are medical in character and bear the name of Hippocrates. The noblest expression of early Greek medical science is to be found in the so-called Hippocratic collection, which contained much material of the most scientific type. The greater part of Greek medical writings was founded on a rational basis. They endeavoured to explain the origin of disease on rational grounds and to apply remedies when possible on a reasoned basis, and, despite serious and irreparable losses, we are still in possession of some of the finest products of the Greek medical intellect. Practically all the works of ancient medicine were produced by Greek physicians. There are said to be fifty-three works in all in the famous Hippocratic collection, but of all these works not one can be definitely stated to have been written by Hippocrates himself; the books which compose this collection were probably written by different authors at dates widely separated from each other. The *Aphorisms* is the most famous book associated with the name of Hippocrates, probably the greatest medical work ever written, and is the most likely of all the collection to have been written by the "Father of Medicine" himself.

The works of Hippocrates, and later of Galen, formed the main medical legacy of Greece to the world. Galen, like the great master, was a voluminous writer. His works alone form about half the mass of surviving Greek medical literature. They cover every department of medicine; anatomy, physiology, pathology, medical theory, therapeutics, as well as ethical medicine and surgery. Galen's views of disease in general are those of Hippocrates, but in treatment he differed, for he placed great confidence in drugs. He was the greatest biologist of the late Greek period, perhaps the greatest of all time. His views prevailed in medicine until Harvey and even later. There is no ancient physician in whose writings are contained so many indications of modern methods of research. His knowledge of the heart and arteries was such that it is difficult to understand how he missed discovering the circulation of the blood. All through later antiquity and the Middle Ages the science of medicine was based on the writings of Hippocrates and Galen. With the death of Galen in the second century of the Christian era the creative period of the Greek medicine terminated, and for more than a thousand years the wonderful accomplishments of the Greeks were almost forgotten.

In the beginning of the Christian era Galen and Celsus flourished. These two famous men were educated at Alexandria. In their medical practice they both took advantage of the curative powers of the sun, but after them all persons were treated alike in physical and intellectual

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night, and for a thousand years the practice of medicine was but a corrupt imitation of the teachings of the great master. The wisdom of the Greeks was in this age considered foolishness; knowledge other than that which made a man wise unto salvation was considered useless. With the advance of the sixteenth century the western world again turned its eyes to the old Greek intellectuals for instruction, and at this time the works of Aristotle and Galen became the great stimulus to the foundations of a new biological science. It is now recognized that Aristotle was one of the very greatest investigators of living Nature; he was perhaps the greatest naturalist of antiquity. His biological works excited little interest during the Middle Ages, but from the sixteenth century on they have been closely followed by naturalists. He was always found in the van of progress. For two thousand years, and throughout all lands, men have come to him and found information. While the western world sat in darkness, Arab and Moor, Syrian and Jew cherished his books. The oldest of the universities were based on his teaching and his influence still remains. It is said that no man has ever swayed such an intellectual empire as he in logic, metaphysics, rhetoric, physiology, ethics, poetry, politics, and natural history; in all a creator and in all a master. So far as we know, there was no biology worth looking at before him. The history of the human mind offers no parallel to his career, and it is the universal wonder how one man could have accomplished so much.

The activities of the Ancient Greeks are for the most part imperishable, their works are still with us, and their spirit is eternal. During the last six thousand years we have changed our form of belief, we have changed our form of clothing and our dwelling-places, but in brain and body we have changed only in minor details. We are in advance of the ancient Greeks in many ways, but yet there still remains a world beyond our senses of which we can form no conception.

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## DR. ALEXANDER GORDON AND DAUGHTER

BY W. H. HATTIE, M.D.

*Halifax*

Every week "An Occasional" contributes to the *Acadian Recorder* a delightfully gossipy letter dealing with the early days of Halifax. In a recent issue he reminds us, in a brief reference, of the presence in Halifax, a century and a quarter ago, of a Dr. Gordon, whose own career was not marked by conspicuous success, but whose daughter was destined to a somewhat romantic life. What follows has been prepared from the scanty material available to the writer, in the hope that it may interest readers of the *Journal*.

Alexander Gordon, a native of Aberdeenshire, came from Scotland to Charlottetown, P.E.I. in 1785, and was attached in a medical capacity to two companies of the Black Watch, then stationed at the island capital. For services rendered during the American Revolutionary War, he was given a grant of land at Charlottetown. Seemingly, he was a rather dashing fellow, fond of dress and display. He made a successful attack on the heart of Margaret Patterson, daughter of the then governor of the colony, and took her as his bride early in 1791. Four children issued from the marriage, of whom Margaret, the last to be born, gained no inconsiderable celebrity.

Gordon was at least a wee bit reckless, and became so involved financially that all his property was seized for debt, and he moved with his family to Halifax, soon after the beginning of the last century. A little later he received an appointment as apothecary to the garrison at Halifax. Within a short time he was charged with an offence for which he was court-martialled and deprived of rank and pay for six months. Before the expiration of this time the strength of the garrison was reduced, and Gordon's pay was cut in half. This was quite insufficient for the maintenance of his family, so he decided, in 1803, upon a visit to his old home in Scotland, in the hope of disposing of a little property he held there and possibly of obtaining some assistance from relatives. Acting promptly on this decision, he took with him his two daughters, Margaret and Mary, to place them with his sister, Mrs. Usher, of Kirkaldy, a widow without children and with little means, in order that they might come under the tuition of Edward Irving, a famous teacher with whom Thomas Carlyle later became associated. Gordon died during the passage, leaving his family in wretched circumstances.

The fatherless little girls were in time placed in accordance with Gordon's intentions. A small annual grant was made to them from the "Compassionate Fund" and this gave the girls and their aunt, Mrs. Usher, a combined income of about £45. Mrs. Gordon supported herself and her two boys for a few years, when she married Dr. Guthrie, an army surgeon.

Despite her straitened circumstances, Mrs. Usher managed to have her nieces benefit by the instruction of Irving, the Kirkaldy schoolmaster. Margaret proved to be an exceptionally apt pupil and won Irving's admiration. When Carlyle went to Kirkaldy, he promptly fell in love with Margaret, whom long afterwards he described (*Reminiscences*) as "of the fair complexioned, softly elegant, softly grave, witty, and comely type," with "a good deal of gracefulness, intelligence, and other talent." Other references to his first love are to be found in Carlyle's writings, and it is generally believed that the original of "Blumine" (in *Sartor Resartus*) was none other than Margaret Gordon.

There is good evidence that Margaret admired

and was fond of Carlyle, but, in all probability, she was already engaged to Alexander Bannermann, of Aberdeen, to whom she was distantly related and to whom she became married a few years later. In 1851 Bannermann was knighted, and appointed to the governorship of Prince Edward Island, and in the following year Lady Bannermann returned to her native province, after an absence of just half a century, to grace the Government house which her mother had left as the bride of Dr. Gordon. A few years later Sir Alexander Bannermann was transferred to the governorship of the Bahamas, and subsequently to that of Newfoundland. Lady Bannermann was thus brought into contact with many eminent people, upon all of whom she made a deep impression by her learning, charm of manner, and sweetness of disposition. She died in London in 1878, at the age of 81 years.

# Special Correspondence

## *The London Letter*

*(From our own correspondent)*

The arm-chair critic is undoubtedly getting alarmed at the growth of what he calls bureaucratic medicine, and the flow of reports from Government offices on health matters, with their talk of "norms" and "data", is certainly increasing, while enthusiastic young men in the public health services are inclined to sneer at clinical medicine. All this is no doubt the inevitable accompaniment of a revolution, for a revolution is certainly in progress; and Sir George Newman, the Chief Medical Officer of the Ministry of Health, is one of the leading conspirators, with "prevention" as his pass-word. These remarks are suggested by the Annual Report for 1927 on "The State of the Public Health." In the old days such reports dealt characteristically with statistical studies of death and the revolution is seen in the proportion of the volume now devoted to the living. It is true than an infantile mortality rate of 70 per 1,000 births is mentioned but that is surely a figure of which as a nation we can be proud, our pride being tempered by the fact that puerperal mortality shows no decline and the death rate of infants under one month still remains high and shows no diminution during the last five years. Dealing with the living, the report emphasizes the value of artificial immunization against diphtheria (although the London County Council still refuses to adopt it), and mentions the increased use of scarlet-fever antitoxin. Tuberculosis receives very full consideration, especially as regards treatment and the use of B.C.G. This vaccine is discussed, with guarded conclusions, pending further investigations.

Sir George Newman lays down the basic principles of a sound national system of preventive medicine as collection of data, establishment of normality, investigation of the character and incidence of disease, and the national organization of health services. Such is the revolutionary creed, but the arm-chair critic may prefer to be allowed to die quietly with his bottle of medicine by his side.

It is most awkward to be a lunatic or a mentally defective person these days, for the chances are that institutional treatment will be very difficult to obtain unless one is a rich lunatic. The shortage of accommodation for mentally diseased patients is very serious and rightly occupies an impnrtant position in the report for 1927 by the Board of Control. The number of patients resident in county and borough mental hospitals increases on an average by approximately 2,500 every year while the number of vacancies is obviously decreasing. At the moment only two local authorities are building new institutions while a large colony at Epsom, famous for its mental hospitals as well as for the Derby, has been re-opened in an attempt to deal with the problem. Such a shortage of accommodation is a serious matter for "lunatics," but even more serious for "mentally defectives," who are rather in the position of being dealt with after all available room has been filled up. This is especially serious in view of the new "Mental Deficiency Act," the most important sections of which it will be impossible to administer unless prompt action is taken. On very conservative estimates only half of the mentally defective patients requiring institutional care were receiving it on January 1, 1928. Such a position is intolerable, for mental defectives are notoriously prolific and always beget defectives, becoming veritable centres of degeneracy, disease, inebriety, pauperism and crime Mental hospitals are too busy dealing with lunatics, even if they had space to spare for mentally defective patients, and it appears a most urgent matter for the welfare of the nation that local authorities speedily found colonies and suchlike institutions for the increasing number of cases which correct administration of the Mental Deficiency Act will entail.

The Fourteenth Annual Conference of the National Association for the Prevention of Tuberculosis was held in London during last month and was notable on this occasion for the presence of Canadian delegates. It is always difficult and invidious to pick out special papers from a conference of this sort, but for a practical appreciation of the tuberculosis problem as

it exists in England and how it should be tackled a communication by the chief tuberculosis officer for the county of Lancashire, Dr. G. L. Cox, demands notice. He emphasized first the importance of the dispensary as an organization rather than as a mere building, and he said that the commanding officer must be paid enough to be an up-to-date specialist, working whole time at his job. The dispensary unit included notification and led on to the second link in the scheme, the institutional unit. There was only too often too little institutional accommodation available and the difficulty had been met in Lancashire by providing in each dispensary area a hospital run by the consultant tuberculosis officer and his assistants. The third link was after-care and education where the social worker was of great value. Discussion took place on Dr. Cox's paper, and it was noticeable how prevention was kept very much in the foreground with a *leit motif* of housing as the first problem to be solved.

ALAN MONCRIEFF

London, November, 1928.

## *The Edinburgh Letter*

*(From our own correspondent)*

Dr. W. T. Ritchie, the new incumbent of the Chair of Medicine in the University, delivered his inaugural address on Thursday, October 4th. After a generous tribute to Dr. Gulland, the retiring Professor, Dr. Ritchie referred in turn to the various distinguished men who had occupied the Chair since its foundation in 1685. The first three professors of medicine in the University were Sir Robert Sibbald, Dr. James Halket and Dr. Archibald Pitcairne. Pitcairne was the most renowned physician of his day in Western Europe, and may be regarded as the founder of the Edinburgh Medical School. He was professor at Edinburgh and at Leyden at the same time. An ardent Jacobite, on the death of Claverhouse at the battle of Killiecrankie, he composed an epitaph to the memory of that devoted loyalist. In 1724, William Porterfield was selected by the Town Council to fill the Chair. His tenure was very brief and when the medical faculty was founded in 1726, Drs. Sinclair and Rutherford were appointed professors of the Theory and Practice of Medicine. Rutherford was the maternal grandfather of Sir Walter Scott. He was succeeded by Robert Whytt, who was followed by John Gregory. The next professor was the illustrious Cullen. At his death in 1790, his place was taken by James Gregory, whose father had previously held the Chair. Gregory's claim to fame can only be regarded as a little less than those of Pitcairne and Cullen, though now he is chiefly enshrined in our memories as the inventor of his rhubarb powder. James Home, who hardly lived up to expectations, followed and in turn gave place to William Pulteney Alison, the brother of the historian. The next to occupy the Chair was Thomas Laycock, an Englishman, who was mainly interested in nervous and mental disorders, working on lines similiar to Charcot and other French physicians. Sir Thomas Grainger Stewart followed in 1876, and so, by John Wyllie and George Lovell Gulland, we come to the present day. The appointment of a new professor to the Chair of Medicine in Edinburgh is a matter of first class importance. A survey of this galaxy of notable names will show that the new incumbent is succeeding to a heritage of fame.

Under the auspices of the National Association for the Prevention of Tuberculosis an extensive campaign of popular education is being carried on all over Great Britain. Three medical commissioners with special experience of the disease have been appointed, and are now touring the country, giving lectures and demonstrations upon every aspect of the subject. In Scotland, Dr. Harley Williams has held meetings principally in the Highlands and Islands, which for many reasons have an unenviable amount of the disease. During the past year over two hundred meetings have been held, some of them in the very remote parts of the Outer Hebrides. An interesting series of cinematograph films is shown to the people, and special competitions are held among the school children, with prizes for the best essays upon the subject of the lecture. In spite of the prejudices of the people and their conservative habits in regard to the routine of their dailly life, the large attendances at the lectures have been an encouraging feature of the tour. The Scottish Highlander is well known for his intelligence. He is well able to follow a case when it is put to him, and there is reason to believe that the Association's campaign may be the beginning of new things for those who live in those remote districts. As a social problem tuberculosis is of comparatively recent origin in the Highlands. In many places there are men still living who can remember the first cases in their own village. It has all the features of a new infection spreading in virgin soil. Contemporaneous with the introduction of tuberculosis there has come a change in the nutrition of the people. Fish no longer forms the main portion of the people's food, and the milk supplies in many areas are very limited. Oatmeal, the old fashioned dish of the Highlander, now comes from the cities of the South, and white bread and tea take an undesirably prominent part in his dietary. There are signs that these facts are being realized by the more thoughtful

observers and it is the Association's policy to stimulate the growing desire for new conditions of life. The Chairman of the Executive Committee, Sir Robert Philip, whose pioneer work in the prevention of tuberculosis is so widely known, is responsible for this side of the Association's work.

For a number of years there has been only one crematorium in Scotland. This is situated in Glasgow and the intervening miles have interfered with its frequent patronage by the people in Edinburgh. We are however no longer to be behind hand in this alternative expedient for the disposal of our dead. The Edinburgh Cremation Society have now acquired an option from the Town Council to purchase the house and grounds of Easter Warriston as a situation for the erection of a crematorium. This house stands on a site immediately to the east of the former residence of that Lord Warriston who was the inveterate enemy of Montrose. He was a member of the Cromwell House of Peers, and was singled out at the Restoration and hanged at the Mercat Cross (1663). King Charles II is reputed to have been particularly desirous for the execution of this "canny lynx-eyed lawyer and austere Presbyterian zealot." The house is to be adapted for the use as a chapel and for incinerating rooms. The grounds are spacious and well laid out, and lie within easy reach of one of the largest of the cemeteries in the city. The town council of Aberdeen are also considering the question of establishing a municipal crematorium in or near the city.

A well-known Scotsman, and a notable product of Edinburgh Academy and University, has passed away, through the death of Professor Diarmid Noel Paton, F.R.S., the distinguished Professor of Physiology at Glasgow University. In 1886 he became Lecturer in Physiology at Surgeon's Hall, Edinburgh, and three years later was appointed Superintendent of the Research Laboratory of the Royal College of Physicians, where he succeeded the late Sir German Sims Woodhead. In 1906 when Professor J. G. McKendrick retired, he was translated to the Glasgow Chair of Physiology. There during twenty-two full years of service at Gilmorehill, he inspired his students by the enthusiasm of his teaching and his interest in all medicine. The eldest son of the late famous painter Sir J. Noel Paton, he inherited artistic gifts which he used to full advantage in illustrating his lectures. Some of us in Edinburgh remember him not only as a famous scientist and brilliant teacher, but also as one of a distinguished band, which thirty years ago made an annual golfing holiday at the New Year to Machrihanish in Argyllshire, and which included D. J. Cunningham, John Chiene, Robert Muir, Ralph Stockman, G. A. Gibson, Sir James Hodsdon, Sir Edward Sharpey-Schäfer, and F. D. Boyd.

GEORGE GIBSON

23, Cluny Terrace, Edinburgh.

# Medical Societies

## ONTARIO MEDICAL ASSOCIATION

### ANNUAL MEETINGS OF DISTRICT SOCIETIES

### *District Number One*

District Number One met in annual session on October 26th, with an attendance of 160. The District Counsellor, Dr. J. D. Curtis, of St. Thomas, presided.

The first item on the program was a heart clinic by Dr. John Oille of Toronto. Following this, Dr. Omar Wilson, of Ottawa, conducted a skin clinic. The two clinics proved intensely interesting, as was also the address on "Goitre," given immediately afterwards by Dr. R. V. B. Shier, of Toronto.

An address by Dr. E. A. McQuade, of Trenton, President of the Ontario Medical Association, was delivered in the evening. Dr. Robert T. Noble of Toronto, the official representative of the College of Physicians and Surgeons of Ontario, gave a talk on the Medical and Narcotic Drug Acts, setting forth some of the difficulties which have arisen out of their attempted enforcement, and affording an opportunity of clearing away many misunderstandings. Following discussion on the Narcotic Drug Act and the care of drug addicts, a resolution was passed memorializing the provincial government to provide adequate hospital accommodation for all such, and also to make provision for their committal thereto.

The closing address was given by Dr. T. C. Routley, Secretary of the Ontario Medical Association, calling attention to several matters affecting the welfare of the medical profession of this province.

A brief business session was held at which Dr. J. D. Curtis, of St. Thomas, was unanimously nominated for Counsellorship of the district. The following Vice-counsellors were elected for the ensuing year: Dr. F. W. Luney, London; Dr. G. F. Lewis, Windsor; and Dr. J. A. Bell, Sarnia. A very cordial invitation was extended by the medical men of Windsor for the district meeting to be held in that city in 1929.

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*District Number Three*

District Number Three, comprising the counties of Bruce, Grey and Dufferin, met in annual session at Owen Sound, on October 10th, with an attendance of about sixty doctors and forty ladies. The Counsellor, Dr. Malcolm Stalker, of Walkerton, was in the Chair.

The program commenced in the afternoon with an address by Dr. H. K. Detweiler, of Toronto, on "Diagnosis of diseases of the blood and blood-forming organs." This was followed by an address on "The goitre problem in general practice" by Dr. Roscoe Graham and a talk on "Poliomyelitis" by Dr. Geo. F. Boyer, of Toronto. During the afternoon, the ladies enjoyed a game of golf and afternoon tea at the golf club, later joining the doctors at dinner in the Y.M.C.A. Following the dinner, Dr. E. A. McQuade of Trenton, President of the Canadian Medical Association, gave a brief address on matters pertaining to organized medicine. Dr. Robert T. Noble gave an interesting review of the Medical and Narcotic Drug Acts, stressing some of the many difficulties which have arisen out of their attempted enforcement. Considerable discussion followed with reference to the necessity of some provision being made for the care of drug addicts, and a resolution was heartily endorsed by all present memorializing the provincial government to provide adequate hospital accommodation for such cases, and also to make provision for their committal thereto.

The closing address of the evening was given by Dr. T. C. Routley referring to many points of interest to the medical profession of the Province of Ontario at the present time.

A short business session was held at which the following nominations were made for Counsellor of the District: Dr. S. T. White, Orangeville, Dr. T. H. Sneath, Dromore, and Dr. Malcolm Stalker, Walkerton.

The following were elected Vice-counsellors for the ensuing year: Dr. T. H. Sneath, Dromore; P. F. McCue, Walkerton; and H. W. Baker, Grand Valley. It was decided that the next annual meeting of the district should be held at Orangeville.

*District Number Four*

The annual meeting of District Number Four was held in the Hamilton General Hospital on October 25th, and was one of the best attended and most enthusiastic meetings ever held in this district, there being 210 members of the profession present from the city and surrounding counties.

At 9:30 a.m. Professor A. M. Shipley, of the University of Maryland, Baltimore, conducted a clinic on head injuries and surgical conditions of the chest, after which the following excellent papers were contributed by three Hamilton men: "Scoliosis," by Dr. Ernest Janes; "Congenital hypertrophic pyloric stenosis," by Dr. Frank Boone; "Bronchial asthma," by Dr. William D. Swan. Dr. Campbell Howard, of Montreal, then conducted a clinic on typhoid fever and on rheumatic fever and its complications.

At 12 o'clock, those present were entertained to luncheon at the hospital, as guests of the Board of Governors, after which Dr. T. C. Routley gave an address in which he referred to many matters affecting the welfare of the medical profession of Ontario.

In the afternoon, Dr. Harry Whytock, of Hamilton, gave a paper on "The acute ear," followed by an address by Dr. Otto W. Neimeier on "The open reduction of fractures." Dr. A. M. Shipley, of Baltimore, then gave a clinic on "Genito-urinary diseases in older men," after which the following papers were read by local men: "Irregular tachycardia," by Dr. Richard Weaver; "Pituitary tumour," by Dr. Roswell Park. Following this, Dr. Campbell Howard gave a second clinic, this time dealing with primary and secondary anæmia, Banti's disease, and purpura hæmorrhagica.

In the evening an address was given by Dr. E. A. McQuade, of Trenton, on matters pertaining to medical organization.

Dr. Robert T. Noble gave a talk on the Medical and Narcotic Drug Acts, dealing with some of the difficulties which have arisen out of their enforcement.

This was followed by a very excellent address by the Hon. W. H. Price, Attorney-General of Ontario, on "The medical profession and the law."

At a short business session, Dr. J. H. Holbrook of Hamilton, was nominated for the Counsellorship of the district, and Dr. W. K. Colbeck, of Welland, was elected Vice-counsellor.

This completed the program of one of the best district meetings ever held in the province. The clinics conducted by Drs. Howard of Montreal and Shipley of Baltimore were extremely interesting and very highly appreciated, as were also the cases presented by members of the district.

*District Number Five*

A meeting of District Number Five, comprising the counties of Ontario, Simcoe, Peel, and York (including the city of Toronto), was held at Barrie, on October 3rd, under the auspices of the Simcoe County Medical Association. This was the first occasion that this conference has been held outside the city of Toronto and many of those present expressed pleasure with the results of the experiment.

Dr. G. D. McLean, Woodbridge, Counsellor, presided. The first speaker in the afternoon was Dr. Robert T. Noble, who gave a very interesting review of the Medical and Narcotic Drug Acts, and outlined many of the difficulties arising out of their attempted enforcement. After some discussion, the following resolution was directed to be forwarded to the Government from this district:—

Whereas it is the opinion of this meeting that drug addicts should receive hospital care; and

Whereas there is no provision made for these in the hospitals of this Province; we would respectfully request the Provincial Government to provide adequate hospital accommodation for such cases; and also to place on the statute books the necessary legislation covering their committal thereto.—Carried.

The next speaker was Dr. J. K. McGregor, of Hamilton, who spoke on "Factors contributing towards reduction of surgical failures." The third speaker of the afternoon was Dr. Geo. S. Young, of Toronto, who gave a very interesting and instructive paper on "Hypertension." He stressed the importance of watching the diastolic blood pressure.

Very interesting addresses were given in the evening by Dr. E. A. McQuade, Trenton, and Dr. T. C. Routley, Toronto, and were interspersed by enjoyable vocal numbers by Mrs. and Miss Laidman, Barrie. Mr. F. Krait, Barrie, pleased the audience with solos on the violin and clarinet.

After recommending that the name of Dr. W. A. Lewis, of Barrie, be placed in nomination for Counsellor at the annual meeting of the Canadian Medical Association, and electing Dr. S. W. Otton, of Newmarket, as Vice-counsellor of this district, the concluding speaker of the evening, Dr. F. S. Patch, of Montreal, gave a delightfully instructive and interesting talk on "Some aspects of the prostatic problem." This was accompanied by lantern slides and the subject was dealt with in such a manner as to be fully appreciated and enjoyed by the general practitioner as well as the trained urologist.

### *District Number Six*

The annual meeting of District Number Six, was held in Belleville on September 27, 1928. There was a large attendance of the medical men of the district, and a splendid program was much enjoyed. The day was fine, and many of the doctors were accompanied by their ladies, who were looked after by Dr. Emma Commor. The meetings were held in the Hotel Quinté, commencing at 9.30 a.m.

During the morning session, most interesting papers were read by Dr. MacGregor, of Kingston, on "Cœliac disease"; Dr. H. B. VanWyck, of Toronto, on "Toxæmias of pregnancy"; and Dr. F. J. Tees, of Montreal, on "Difficult fractures." At 12.30 lunch was served, and at the afternoon session the following addresses were enjoyed: "Some clinical problems in disease of the kidney," by Dr. John A. MacGregor, of London; and the "Surgical abdomen," by Dr. A. L. Lockwood, of Toronto. During the course of the evening dinner addresses were given by Rev. Dr. Bishop, Principal of Alberta College, Belleville; Dr. E. A. McQuade, and Dr. Robert T. Noble. The latter spoke on the subject of the Medical and Narcotic Drug Acts. Owing to illness, Dr. T. C. Routley was unfortunately unable to be present, and was much missed by the meeting.

A resolution was passed that the Government be asked to provide facilities for the treatment of drug addicts and alcoholics.

Dr. F. C. Neal of Peterborough and Dr. George H. Stobie of Belleville were re-elected Counsellor and Vice-counsellor for District Number Six for the ensuing year.

### *District Number Seven*

On Wednesday, October 31st, the annual meeting of District Number Seven was held in Kingston, with an attendance of 125 medical men from Kingston and surrounding counties.

The morning session, which was held in the General Hospital and was presided over by Dr. L. J. Austin, consisted of a number of very interesting clinical cases presented by members of the district.

The afternoon session opened with an address by Dr. Roscoe R. Graham of Toronto on "Surgical aspects of thyroid disease." This was followed by an address by Dr. T. C. Routley, touching on many matters of interest to the medical profession at this time. Dr. I. M. Rabinowitch, of Montreal, then gave a paper on "Diabetes." The last address of the afternoon was given by Dr. W. P. Tew, of London, on "The management of certain obstetrical difficulties."

A banquet was served at 7.30, followed by an address by Dr. E. A. McQuade, on matters pertaining to medical organization.

Dr. Robert T. Noble gave a brief review of the Medical and Narcotic Drug Acts, which proved very interesting to those present. Dr. Noble called attention to some of the difficulties which have arisen out of the attempted enforcement of these acts. Considerable discussion ensued with reference to the care which should be given drug addicts, and a resolution was passed memorializing the Government to provide adequate hospital accommodation for all such, and also to make some provision for their committal thereto. The final address of the evening was given by Dr. L. J. Austin, of Kingston on "The kings of France and their fatal diseases." This was very much enjoyed by all.

At the brief business session which was held, Dr. L. J. Austin, of Kingston, was nominated for the Counsellorship of the District, and Dr.

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W. A. Jones, of Kingston, was elected Vice-counsellor for the ensuing year.

This concluded one of the most interesting and enjoyable annual meetings ever held in District Number Seven.

*District Number Eight*

The annual meeting of District Number Eight was held in Ottawa on October 24th. The morning session opened at 9 o'clock at the Civic Hospital, the Counsellor, Dr. W. S. Lyman, of Ottawa, in the chair.

Dr. F. H. MacKay, of Montreal, was first on the program, with a paper on "Poliomyelitis." This was followed by an address on "Thromboangitis obliterans" by Dr. Donald A. Hingston, of Montreal.

At 1 o'clock, luncheon was served at the Chateau Laurier. During the luncheon hour, a short business session was held at which Dr. W. S. Lyman, of Ottawa, was nominated Counsellor and Dr. J. C. Woods was elected Vice-counsellor for the ensuing year. Immediately following the luncheon, Dr. E. A. McQuade gave a brief address, after which Dr. Robert T. Noble, gave a review of the Medical and Narcotic Drug Acts, stressing some of the difficulties which have arisen out of their attempted enforcement. This was followed by a talk by Dr. T. C. Routley, touching upon many matters of importance to the medical profession at the present time.

At 3 o'clock, the meeting adjourned to the General Hospital, where an address on "The treatment of headache" was given by Dr. Wilder G. Penfield, of Montreal, followed by a paper by Dr. H. B. Cushing, of Montreal, on "The prevention and treatment of scarlet fever."

This was one of the best attended meetings ever held in this district, there being 175 members present from Ottawa and the surrounding counties. That the very excellent papers were thoroughly enjoyed by those who heard them was evinced by the splendid discussion which followed. It was the unanimous opinion that the meeting was a decided success, both from the social and scientific point of view.

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## THE PRINCE EDWARD ISLAND MEDICAL SOCIETY

Dr. A. Stewart, surgeon, and Dr. R. R. Struthers, pædiatrist, both of Montreal, delivered the extra-mural lectures before the Prince Edward Island Medical Society on October 24th.

Dr. Stewart dealt in a very interesting and lucid way with the difficult subject of pulmonary suppuration. The various methods evolved during the past few years, such as bronchoscopy, for diagnosis and drainage, phrenic evulsion, thoracoplasty and the cauterization lobectomy have placed in the hands of the skilled surgeon a varied and scientific armamentarium for attacking these hitherto unsatisfactory problems.

His afternoon paper dealt with diseases of the anus and rectum. He emphasized the importance of a careful history and physical examination, particularly digital examination of the rectum, as well as the more modern barium series and proctoscopic examination. He advocated the clamp and cautery operation for hæmorrhoids, and strongly deprecated the injection of chemicals in this condition.

Dr. Struthers in the morning spoke on "Tuberculosis in childhood." He traced the tuberculosis bacillus from the time it was aspirated until it reached the tracheo-bronchial nodes, producing the usual pathological lesions, and from where it might spread by breaking into the bronchial tree, by way of the lymph channels or by the blood stream; by these latter channels, also, producing acute miliary tuberculosis, with its predominant manifestation, tuberculous meningitis. The chief symptoms were fatigue, loss of appetite, weight and colour, a peculiar two-tone metallic cough and a temperature above 100° F. These were supplemented by the signs of anæmia and malnutrition, together with vertebral dullness below the first dorsal spine; x-ray evidence of enlarged tracheo-bronchial nodes and the tuberculin reaction. He had not found D'Espine's sign very useful. The bovine type, localizing in cervical and mesenteric glands, showed similar evidences of malnutrition, but milder in degree. This type caused only 10 per cent of the deaths in childhood. The treatment was that of adult tuberculosis; rest, fresh air, good food plus cod liver oil, and the quartz lamp in glandular types.

In the afternoon, Dr. Struthers discussed the feeding of the normal infant. He set forth a few simple rules from which an ordinary feeding formula could be easily calculated: (1) The total fluid intake should average two and one-half ounces per pound of body weight per day. (2) The amount of milk necessary to supply the needed protein, fat, carbohydrate and salts was about one and one-half ounces per pound of body weight. (3) The total amount of nourishment in calories.

The infant's basal metabolic needs were about 27 calories. To this must be added sufficient to provide for activity, growth, etc., which brought the total up to 45 or 50 calories per pound of body weight per day. After the total fluids and milk requirements were fixed, the remainder of the caloric needs were supplied by adding sugar. At 5 to 6 months cereals and strained soups are added; and at 9 months, vegetables and additional protein in the form of hard-boiled egg and crisp bacon. Dr. Struthers also discussed the usefulness of protein milk and various soured milk mixtures in the treatment of fermentative diarrhœas.

Dr. Stewart and Dr. Struthers gave us material which has been of immediate value in our practice. Few lectures since the extramural courses started have been received with such enthusiastic appreciation.

J. W. McKENZIE

### THE REGINA DISTRICT MEDICAL SOCIETY

On November 14th, the Regina District Medical Society, held its regular monthly meeting. This took the form of a banquet in honour of Dr. M. M. Seymour, who for many years has been Deputy Minister of Public Health. Dr. Gorrell, in eloquent terms, proposed a toast to the guest of the evening. He recounted very many distinguished services rendered by Dr. Seymour, both as a medical practitioner and as a public health official. He also referred to the many honours which have been conferred on him. This was very ably seconded by Dr. F. W. Hart of Indian Head, and was drunk amidst great enthusiasm.

Dr. A. MacG. Young, General Secretary of the Saskatchewan Medical Association, brought greetings from the Saskatoon District Medical Society, and also, on behalf of the profession, spoke in terms of praise of the excellent work done by Dr. Seymour, and wished him health, happiness and prosperity in his new surroundings. Dr. O. E. Bothwell, district representative on the Council of the College of Physicians and Surgeons, also spoke along similar lines. Dr. W. A. Thomson, Regina, who had known Dr. Seymour ever since he had come to the city of Regina recounted many of the incidents which had occurred in the last quarter of a century, and gave many personal reminiscences. Dr. J. C. Black, a former assistant to Dr. Seymour, also spoke briefly.

On behalf of the Regina District Medical Society, the President, Dr. R. O. Davidson, in a few well chosen words presented Dr. Seymour with a beautiful silver serving-tray, suitably engraved.

When the guest of the evening rose to respond he was visibly affected by the many expressions of good will to which he had just listened. He recounted his experiences from the date of his graduation, which was 1879, up to the present time. Many incidents of which he spoke were of a most humorous character, and others were of a very different order, which not only greatly affected the emotions of the speaker but also his audience. At the conclusion of his address he presented the Regina District Medical Society with a photograph of the last Medical Council of the College of Physicians and Surgeons of the North West Territories, of which he was President. In the near future Dr. Seymour and his family intend to reside in Orange, California.

Dr. H. C. George, then presented a very intricate and complicated case of intestinal disorder simulating typhoid fever. This evoked a good deal of discussion and was greatly appreciated by all present.

## Topics of Current Interest

### THEORY AND EXPERIENCE IN MEDICINE

"Sir Arthur Keith addressed the annual meeting of the Chartered Society of Massage and Medical Gymnastics, held in London on October 5th, on the conflict between theory and experience in the practice of medicine.

He began by recounting an incident in his early career, forty years ago, when, in the company of an old practitioner, he visited an upland farmhouse in Aberdeen to see a patient who was prostrate with deep-seated pain in the back. The practitioner proceeded, by dry cupping, to dilate the superficial vessels, and brought about complete relief. Here, to the young man's astonishment, science and empiricism were shown in conflict, and empiricism won, hands down. That was typical, said Sir Arthur Keith, of the conflict which had been going on in medicine for centuries. In any medical journal of any period would be found articles in which the competing claims of science and empiricism were canvassed. It was out of such conflict that medicine advanced to higher things. Young men and women entered the profession with high resolves to make science their sole guide in practice, and soon discovered themselves involved in this conflict. The conception which he himself had formed of science at the time he entered medicine was represented by the kind of knowledge which had been revealed by Pasteur or by Koch in their respective spheres. He set out with the idea that science was creative and should always precede practice, and he had gone a long way on his medical journey before he discovered that he had formed an altogether wrong conception of science. Science performed her best service, not by moving ahead of practice, but by following in the rear. Cod-liver oil furnished a homely example; it had been used by medical

men for generations, though science found no virtue in it, and then, in modern days, came the discovery of its particular value, to justify the medical faith which had been born of experience. During the long and dry winter in Newfoundland the natives lived on salt pork, margarine, and preserved vegetables; in the spring many of them suffered from night blindness. The popular remedy was bird's liver, raw or cooked. Twenty years ago this would have been thought an example of superstition, but again science had provided the justification. Captain Cook's exacting dietetic rules for his crew, whereby the sailor who refused to eat his ration of vegetable hash suffered stripes on his bare back, were successful at the time and had since been justified by the scientific explanation forthcoming in the twentieth century. Edward Jenner found by experiment that he could confer on human beings immunity from small-pox by inoculating them with cow-pox. Jenner could not explain it in scientific terms, but the method he had employed empirically was employed afterwards scientifically by Pasteur, though science had not even yet ousted experience in treatment by immunization. Quinine, digitalis, opium, arsenic, mercury, and many other useful drugs had been brought into treatment, not as the result of scientific inquiry, but of chance discovery. The value of light as a therapeutic agency of the highest value was not a modern discovery, for there never had been a time when human beings did not instinctively bask in the sun. Science played a twofold part in medicine, sometimes moving ahead of practice (as in glandular therapy), and sometimes justifying experience, so that science and experience ultimately became reconciled. It might be said, then, that there was no real conflict, but there was real conflict between magic or superstition on the one hand and science on the other—a conflict in which there could be no compromise or reconciliation.

The body was endowed, said Sir Arthur Keith in conclusion, with certain recuperative powers, and all that science could do was to assist them. But these powers came into exercise also after the charlatan had had his innings, and for this circumstance, of course, the charlatan took the credit. There were numbers of people in this country as superstitious, in a medical sense, as the natives of Africa who believed in their rain-doctors, and when the rain came gave all the credit to the magician, while the thunder-cloud received none.—(*Brit. M. J.*, 1928, ii, 674).

## MEDICINE AND FLYING

"Sir Samuel Hoare, Secretary of State and President of the Air Council, after presenting the prizes at the London Hospital Medical College and Dental School on June 29th, made some interesting remarks on the contacts between the new profession of flying and the ancient profession of medicine. He said that there was no profession in the world which demanded a higher standard of physical and nervous efficiency than flying. As the Royal Air Force had developed, the old tests which had proved sufficient for the Army and Navy were quite out-distanced, and it was soon evident that the man who had what the insurance companies would call a first-class life was by no means necessarily a good pilot. Other tests had to be superimposed, and the medical officers of the Air Force had accordingly gone to work in a special way. Instead of merely ascertaining that a candidate for a commission was free from any obvious disability or disease, they had worked out some special tests for the efficiency and co-ordination of brain, eye, hand, and foot. Sir Samuel Hoare mentioned that a short time ago he himself went through these tests, and he was glad to report that, notwithstanding five years' work in the Cabinet, his eyesight was classed in the same category as that of Mr. Jack Hobbs, the well-known professional cricketer, who had been examined shortly before. But he was excelled by Lady Maud Hoare, who accompanied him in his flight to India and back, in respect of co-ordination of movements of hands and feet, excellences which he attributed to her habit of continual motor-driving in London. The tests applied to candidates at the medical stations were supported in a remarkable degree by reports received afterwards from the units to which the newly commissioned officers were sent. This series of tests had been developed not from theory but from practice. The men who had proved themselves to be the best pilots were taken and their qualities analysed, and the result of the analysis was made the standard for application to subsequent candidates.

Sir Samuel Hoare pleaded that the medical services of the Air Force should be considered not only as an integral part of the "new arm," but as an important branch of the medical profession. He mentioned also the services which the aeroplane itself was rendering as an instrument of first aid. During some recent military operations in a difficult mountainous region of Kurdistan, about one hundred men of the regiment fell ill of dysentery. Thanks to the Royal Air Force, every one of those men was transported with the utmost swiftness to the hospital at Bagdad — an operation which otherwise than by air would have involved days of painful journeying—where they all completely recovered. One of the principal sheiks of the desert, a man who had lived his life under similar conditions to the patriarchs of

the Old Testament, went down with pneumonia. An aeroplane was sent to his assistance; he, too, was conveyed to the hospital at Bagdad, and made a good recovery. The aeroplane, besides being an instrument of defence and of civil transport, was specially well adapted for ambulance purposes. Some of the fastest aeroplanes were now being equipped in such a way that they could easily accommodate stretcher cases, and Sir Samuel Hoare said that he himself had recently flown in one of these machines a distance of two hundred miles in sixty-eight minutes."(*Brit. M. J.*, 1928, ii, 25).

## THE AUSTRIAN LIP

"In a well-known passage of his autobiography Edward Gibbon wrote: 'Our immortal Fielding was of the younger branch of the Earls of Denbigh, who draw their origin from the Counts of Habsburg, the lineal descendants of Eltrico in the seventh century Duke of Alsace . . . . The successors of Charles the Fifth may disdain their brethren of England; but the romance of *Tom Jones*, that exquisite picture of human manners, will outlive the palace of the Escurial, and the imperial eagle of the house of Austria.' Unluckily the romantic legend of the common origin of the Fieldings and the Habsburgs has been destroyed by the researches of the late Mr. J. H. Round, but this noble tribute to the genius of Henry Fielding remains in untarnished splendour. The prophecy has in part been fulfilled, for although the palace of the Escurial seems likely yet to outlast many centuries, the imperial eagle has taken wing into the limbo of lost causes and has gone, as a national emblem 'for good,' while *Tom Jones* is still reprinted and delights successive generations of readers.

There is, however, a characteristic of the house of Habsburg, to which Gibbon did not allude, which seems to be as persistent as its coat of arms or its Spanish palace. This is that combination of traits of feature which is known as the Habsburg lip, from the fact that a prominent or hanging lower lip is the most obvious of the peculiarities which constitute this family type.

In an elaborate study of the heredity of the stigmata of degenerescence Dr. V. Galippe of Paris published in 1905 a well-documented research dealing chiefly with the house of Habsburg and its origins.* He showed that the peculiarity of the Habsburg lip depends principally on a disproportion and want of adaptation between the upper and lower jaws—that its subjects are underhung, in fact—while at the same time there is a lateral compression of the mandible which tends to render the angle between the two horizontal rami more acute than normal. This deformity French anatomists call *inferior prognathism*. It must not be confused with the prognathism which is a character of the lower races of mankind and which involves a projection of both jaws beyond the vertical line of the ideal orthognathous skull. Without attempting to follow all the footsteps of courtly genealogists who have professed to find the roots of the Habsburg family tree in the year 690, Dr. Galippe goes back to the fourteenth century and begins with a traditional portrait of Ernest I, Duke of Carinthia, which he says shows inferior prognathism. This is succeeded by some 250 portraits, the series only ending in quite recent times and including the unfortunate Archduke whose murder started the world war. In nearly all these portraits, among which are included those of our Stuart kings, Dr. Galippe sees inferior prognathism, in many cases where it must be confessed that a less enthusiastic observer would only see that fullness of the lips which some artists gave to their sitters as a beauty. Dr. Galippe is on firmer ground when he argues that a deformity such as that shown by the Emperor Charles V has been perpetuated by the inbreeding which has been carried to such a pitch by his descendants and collaterals, although few of them showed the peculiarity in so marked a degree as he did; yet it appeared in an extreme form in the Emperor Leopold I (1640-1705), and as late as 1817 in the Archduke Albert Frederick Rudolph who died in 1864.

The basic deformity in the typical Habsburg skull is, according to Dr. Galippe, a lateral compression with corresponding expansion in the antero-posterior direction causing, or at least associated with, exophthalmos. He does not mince matters in discussing the royal and noble families of Europe, nearly all of which were tainted with Burgundian blood, and, according to him, few of them of moral worth, and many of them of feeble intelligence; but after making full allowance for prejudice we must admit on the evidence that the Habsburg lip seems to be a dominant peculiarity, which crops up again and again, even among remote collaterals.

Dr. Galippe shows also that a similar deformity existed independently in a marked form among the Medicis of Tuscany; although the deformity in this great mercantile family was not derived from any of the sources of the Habsburgs, it was enhanced by intermarriage with that family. It is most obvious in the portrait of Cosmo III by Westerhout, and is unmistakable in that of the first Grand Duke Francis, and in many other members of that family.

Dr. Rubbrecht, of Bruges, has studied this question from a slightly different point of view —that of the connoisseur of paintings and

* *L'Hérédité des Stigmates de Dégénérescence et les Familles Souveraines*, par le Dr. V. Galippe, membre de l'Académie de Médecine, Paris: Masson et Cie., 1905.

sculpture—and he published the results of his research in a beautifully illustrated work* in which he discusses all the available portraits and images of the early members of the reigning families of France, Burgundy, and Austria, and especially the collection of portraits which formed the exhibition of the Golden Fleece at Bruges in 1907, to which pictures were sent on loan from various galleries, including the Royal collection of Windsor Castle, whence came a very notable portrait of the Emperor Charles V by a Flemish master. This portrait, for the faithfulness of which there is strong corroborative evidence, shows the deformity in its most acute degree. The brother of Charles, Ferdinand I, had also a very full and typical lower lip. When it is remembered that the Emperor Charles married his first cousin, and that his daughter and her son did the like, and that such consanguineous marriages were frequent in the family, it is easy to understand the persistence of the Habsburg lip.

From his iconographical studies Dr. Rubbrecht comes to the conclusion that the Habsburg family inherits inferior prognathism from the royal houses of Spain and Austria, but that the large lower lip existed in the families of Burgundy and Spain before their union with that of Austria, and, further, that the lateral flattening of the skull, the long nose, and prominent eyes may be found in the ancestors of the Habsburgs in the houses of Burgundy, Spain and Austria.

To the student of heredity both these books are of great interest. It is easy to understand the persistence of a hereditary trait in a race which bred in-and-in for so many generations, but it is less easy to explain the persistent fecundity of the race under such conditions."—(*Brit. M. J.*, 1928, ii, 763).

* *L'Origine du type familial de la Maison de Habsburg*, Brussels: G. Van Oert et Cie., 1910.

## RADIO-ACTIVE WATERS

"Dr. C. W. Prowd, a Vancouver citizen whose reputation as a radiologist, in technical circles at least, is now nation-wide, recently delivered before the Canadian Club an address that was clearly the outcome of keen observation and quiet, sane, reflection. He has recently returned from the World Conference on Radiology held in Stockholm, Sweden, last July. Four significant thoughts stood out in strong relief and attracted the attention of his auditors. He commented on the striking fact that the very generation which first saw the scientific discovery of x-rays, the basis of the whole science of radiology, should also see a conference of twelve hundred delegates, representing all the civilized countries of the world, assembled in a Scandinavian city to exchange ideas on the practical application of these self-same rays and of radium to modern curative art. He recounted incidents of his tour of Europe, which had been made by aeroplane, because, as he said, a careful examination of statistics showed him that this was the safest method of travel in the middle European countries. He admitted the delights and beauties of his continental tour, but added that they had been surpassed by those of the south of England when he finally concluded his air-trip by flying from Paris to Croydon. Then, to the delight of his audience, he drew the whole chain of thought to a close by giving it as his considered opinion that the people of Vancouver need not go away from home with the idea that they can anywhere else find anything better.

Perhaps the most interesting part of Dr. Prowd's address, from a purely local standpoint, lay in the emphasis he gave to the value of British Columbia's radio-active hot springs. It had caught his attention, while in Europe, that large amounts of capital were being assembled to exploit their curative waters. None of the latter, he found, were superior to those of British Columbia. A tourist can leave Vancouver by motor car and at the end of each day find a resting place at a hot springs, with full radio-active properties, already equipped with good accommodation—Harrison, Halcyon, the Windermere and Banff. Some days, Dr. Prowd thought, each of these places would be a Mecca for thousands in search of health and pleasure. Their value, enhanced by the scenic beauty of the country to be traversed in order to reach them, will undoubtedly prove a real asset to the whole province."—(*The Vancouver Sun*).

## ULTRA-VIOLET RAYS AND CLOTHING

"The health-giving ultra-violet rays of sunlight, which everybody wants nowadays, pass through cotton, linen and rayon fabrics about equally well when these are of equal weight and closeness of weave. Fresh, white, natural silk is almost as transparent toward the rays as bleached cotton, while wool is only about half as transparent. These are some of the results obtained in a study of the transmission of ultra-violet radiation through various fabrics, conducted at the U. S. Bureau of Standards by Dr. W. W. Coblentz, Dr. R. Stair and Dr. C. W. Schoffstall, and reported in the bureau's new *Journal of Research*. "In all cases when the fabric is dyed, or slightly yellowed with age, the ultra-violet transmission through the thread is greatly decreased. Hence, as is to be expected in comparing various kinds of dyed fabrics, the one having the largest openings between the threads transmits the most ultra-violet."—(*Science Supplement*, Nov. 2. 1928).

### THERMAL CONDUCTIVITY OF GLASSES TRANSMITTING ULTRA-VIOLET LIGHT

"Increased knowledge of the beneficial therapeutic effects of ultra-violet light upon living organisms has in recent years led to the development of a number of glasses which transmit ultra-violet light more or less completely. It is evident that if any of them are to replace the window-glass now being used they must be very poor conductors of heat, for otherwise man might pay dearly for the benefits secured by the use of these glasses because of the greater amount of heat they would allow to escape from a room by conduction. The thermal conductivity for a number of these glasses has been determined at the Iowa State College by Christiansen's method. It was found that for every glass tested the thermal conductivity was less than for window-glass." —(*Science Supplement*, Nov. 2, 1928).

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# Abstracts from Current Literature

## MEDICINE

**Vitamin A as an Anti-Infective Agent.** Green, H. N. and Mellanby, E., *Brit. M. J.*, 1928, ii, 691.

This is an important article as it is an attempt on an experimental basis to determine the exact nature of vitamin A.

Vitamin A has always presented special difficulties in assigning to it a clinically descriptive term, because it has depended to such a large extent on a purely physiological criterion, namely, growth in young animals, for its detection. It is often, therefore, referred to as the "growth-promoting" vitamin. Since the recognition of vitamin D (the anti-rachitic vitamin) as an entity distinct from vitamin A those familiar with nutritional work have felt that to call vitamin A the "growth-promoting" vitamin is a misnomer, for good growth often takes place in its absence if the diet is otherwise complete. From the early days of its recognition it has been thought that vitamin A was concerned with resistance to infection, at least of a specific type.

The authors review very briefly the papers of Mori and Bloch in regard to the association of the rare condition of xerophthalmia with deficiency of vitamin A, and the work of Drummond, Cramer and Kingsbury, and Steenbock, on the susceptibility to lung infections of animals fed on diets deficient in vitamin A. An interesting feature is that actual histological changes occur in certain of the tissues as a result of the lack of vitamin A, as indicated especially by the researches of Goldblatt and Benischek, which showed that a metaplasia occurred of columnar, cuboidal, and transitional epithelium into the squamous keratinizing type in such cases. In view of the fact that practically all of the experimental work, except that of Goldblatt and Benischek, was vitiated by the fact that the diets employed were deficient in vitamin D and often vitamin C, in addition to lacking A, the authors felt it was desirable to repeat the work under more exact conditions. The production of vitamin D by irradiation of ergosterol made it possible to prepare diets deficient only in vitamin A.

The animals deprived of vitamin A all died with some form of infection, and the observations were made certain by careful post-mortem examinations. The results are most interesting. Animals deprived of vitamin A, but receiving vitamin D and vegetable margarine, developed, in various proportions, xerophthalmia, abscesses of the tongue, infections of the alimentary tract, nasal sinuses, or the middle ear. None of this group, however, developed infection of the kidneys or bladder, nor did they develop vesical calculus.

A second series of animals, deprived of both vitamins A and D developed the same conditions, but some few of them, unlike those of the first series, developed infections of the kidneys and bladder and vesical calculosis.

A third series of animals were deprived of vitamins A and D, but given heated wheat-germ, fat-extracted wheat-germ, ergot, and fat-extracted ergot. They likewise developed the same conditions as did the animals of the second series, but this further striking feature was elicited, that the animals whose diets contained ergot had a special tendency to form calculi in the kidney pelvis.

The authors conclude that practically all animals deprived of vitamin A die of some infection or pyogenic lesions. In the control animals receiving vitamin A these lesions are absent. The administration of vitamin D does not prevent the occurrence of the lesions described and seems to be unrelated to resistance to infection.

A. G. NICHOLLS

**The Nervous Complication of Measles, with a Summary of the Literature and Twelve Additional Case Reports.** Ford, F. R. *Johns Hopkins Hosp. Bull.*, 1928, xliii, 140.

Severe cases of measles may present drowsiness or even stupor, developing on the 4th to 6th day of the eruption and disappearing with-

out any residuum. This is usually associated with a secondary rise in the temperature. There may be muscular twitchings and even convulsions, and a striking feature may be the excessive irritability. The spinal fluid is usually under pressure, but the cellular content is not greatly increased, and the globulin tests are faintly positive or are negative. Such symptoms as these are usually grouped under the term "meningism"; but it is evident that they point to the brain and not the meninges. There is, however, usually an absence of focal signs, and recovery is prompt and complete. They suggest an intoxication of the nervous system without anatomical lesions.

In this review on the subject of the nervous complications of measles by Ford, he has collected all the reported cases in the literature and has added twelve more. He finds that several types occur. There is the diffuse intoxication mentioned above. Next, there are those with definite focal cerebral symptoms, usually multiple. The clinical picture in these may resemble epidemic encephalitis, or tuberculous meningitis, and it may be difficult to distinguish between them at first. In a large percentage of these cases there are residual mental defects. Epilepsy followed in four cases. Five of the patients died.

In a third group he places single focal cerebral lesions, in which hemiplegia and aphasia are the commonest symptoms, although it is to be noted that these are sometimes the residual manifestations of diffuse original symptoms. Sometimes, however, it may appear without warning, as if due to a single vascular lesion.

Another distinct and interesting group is that with cerebellar involvement, resulting in acute ataxia. Measles, indeed, is the cause of a fairly large percentage of the acute ataxias of childhood. One author is quoted by Ford as finding that 8 out of 31 cases of acute cerebellar ataxia in childhood had followed measles. The ataxia is usually generalized, but may be local. There may be a typical "intention tremor" as well as loss of muscle tone, slow or scanning speech, nystagmus, loss of equilibrium and head tremor. These symptoms are usually masked at the outset and only become evident with the increased activity of the child during convalescence. Next come paraplegias and spinal cord syndromes. Loss of sensibility is present in most cases in the early stages, but this generally passes off during convalescence and is always less severe than the motor symptoms. The sphincters are frequently involved.

Mental disturbances as the chief feature are not uncommon, and initial delirium is present in almost all cases in which the nervous system is seriously affected, except in some cases of acute ascending myelitis, and of some hemiplegias in which the onset is apoplectic. This early delirium is usually associated with high fever and is not more frequent or severe than in any other acute infectious disease. The commonest mental residuum of measles is reduction of intelligence. In the 125 cases abstracted by Ford mental defect was noted in 22. Change in personality, irritability, destructiveness, and a-social behaviour, such as are commonly found after epidemic encephalitis, are less common but are mentioned.

The pathological changes behind all these findings are those of a toxic-degenerative character rather than of an inflammatory process. There is characteristically a perivascular myelin destruction with collection of lipoid waste products in phagocytes and even in the nervous tissues. There is also great congestion of the vessels with swelling and fatty changes in the vascular endothelium. Very little change can be made out in the axis-cylinders and little or no destruction of the nerve cells.

The prognosis for life is good. Only about 10 per cent of all measles patients die. About 65 per cent of those who survive show residual symptoms; there is weakness in 30 per cent; ataxia in 12 per cent; mental defect or personality change in 17 per cent; and epilepsy in 5 per cent.

H. E. MACDERMOT

**Studio sulle modificazioni dei globuli bianchi nella anemia perniciosa progressiva in seguito alla terapia epatica. (A Study of the Modifications of the White Corpuscles in Progressive Pernicious Anæmia following Liver Therapy).** Giauni, G., *Il Policlinico*, 1928, xxv, 2083.

Giauni in this article collects the data so far published in regard to the changes in the state of the blood in cases of pernicious anæmia which have been treated with liver extract after Whipple's method, together with his own observations. Important modifications in the red and white corpuscles are constantly observed. In 85 per cent of the cases the leucocytes are increased to the normal figure or even above it. As a rule the polymorphonuclear leucocytes are increased relatively and absolutely, while the lymphocytes are diminished. In not a few instances there is a noteworthy increase in the eosinophiles; figures such as 5, 7, 20, 25, and even 37 per cent have been recorded. The changes in question give one the impression that liver feeding promotes markedly the regeneration and functional activity of the bone marrow. They are, also, of prognostic import.

A. G. NICHOLLS

**Value of Leucocyte Counts According to the Arneth-Schilling Formula in Clinical Medicine.** Nichaus, F. W., *Med. Clin. N. A.*, September, 1928.

The Arneth-Schilling method of leucocyte count involves the classification of the leucocytes in a blood smear into embryonic, young, and mature types, according to the morphology and staining reactions of the nucleus and cytoplasm. By tabulating the percentage of the various forms at intervals during the course of an infection, an estimate may be made of the reaction of the hæmatopoietic system, and further evidence may be gathered for prognosis. A predominance of immature forms is said to indicate active stimulation of an efficient bone marrow. An alteration towards more mature polymorphonuclears and mononuclears is seen with recovery and in the presence of a grave infection with inadequate tissue response.

A series of cases are cited in which this method proved of value to the clinician.

J. B. Ross

**Rotogravure Ink Dermatitis.** Oliver, E. A., *J. Am. M. Ass.*, 1928, xci, 12.

This is a report of 15 cases of dermatitis which were caused by the colouring matter used in the pictures of the rotogravure section of certain weekly papers. Dr. Oliver's first experience with this type of dermatitis was in 1926, when a man of 66 consulted him for a severe dermatitis of the forehead and face. The history gave no clue beyond the fact that the dermatitis was always worse on Monday and Tuesday which suggested that the irritant responsible was met with over Sunday. It did not seem to be in his home environment, however, since spending Sunday at his office made no difference. It was finally concluded, therefore, that the only detail in which his life on Sundays differed from that on other days was the reading of the Sunday paper, which contained a comic section and a rotogravure section. He was advised to stop reading this paper and the dermatitis cleared up almost immediately afterwards. A year later experimental handling of the rotogravure section brought on a fresh attack of the dermatitis.

This case served as a clue in 14 others of a similar nature. In each instance it was clearly established that the dry colour used in the ink for the coloured section was the responsible factor.

The ink itself is made up of two components, a varnish, and a dry powder which gives the colour. The varnish is a solution of gelsonite (an asphalt) in naphtha and xylene. The powder added to this is a more complicated substance, consisting of a diazo dye, called para red, in which there is an irritating coal-tar product, paranitraniline. Cutaneous tests showed this dry powder to be the irritant and not the varnish.

It is curious that no cases of dermatitis could be found amongst the employees of the paper or amongst those manufacturing the ink. In the discussion on the case it was pointed out that a patient might by judicious selection occupy himself with illustrated newspapers of this type all through the week and so develop continuous rather than periodical symptoms. The distribution on the body too may be variable, since the handling of the paper may permit of the ink being conveyed to different parts. One case of asthma due to the ink has been reported in New York.

H. E. MacDermot

## SURGERY

Acute Thyroiditis. Burhans, E. C., *Surg., Gynec. & Obst.*, 1928, xlvii, 478.

Acute thyroiditis, with or without abscess formation, occurs commonly enough to warrant careful study. The blood supply of the thyroid is rich and the production of the thyroid hormone also tends to prevent infection of the thyroid, while the physiological changes occurring during puberty, menstruation, pregnancy, and acute infections, and the development of adenomata in the gland, tend to lower its resistance.

The disease may be acute or chronic, suppurative or non-suppurative. The acute inflammation may resolve or go on to suppuration and gangrene. When suppuration occurs, the suppurative lesions may consist of multiple miliary abscesses or may be large pockets of pus involving one or both lobes. Chronic non-suppurative thyroiditis is seen in the neighbourhood of adenomata, causing a localized fibrosis of the interstitial tissue. Specific non-suppurative inflammations are caused by tuberculosis and syphilis, the former giving a large, hard, nodular tumour of rather rapid growth; the latter occurring in two forms: first, the diffuse thyroiditis, and, second, gummata. Riedel's thyroiditis is of unknown etiology and is characterized by a marked fibrosis of the thyroid with adhesions to the adjacent structures and produces a gland so firm that is often diagnosed as malignant.

There are numerous etiological factors in acute thyroiditis, trauma being one of them, but, aside from trauma, infection may occur in one of four ways: (1) Through a persistent thyroglossal duct; (2) By direct extension from contiguous structures; (3) By lymphatic metastases; and (4) By blood stream metastases. The bacteria causing the infection are typhoid and paratyphoid bacilli, pneumococcus, streptococcus and staphylococcus.

Clinically, acute thyroiditis occurs suddenly

with swelling or tumour formation over the thyroid, producing pain in the neck which radiates to the mastoid region or the ear. There is tenderness over the gland and chills and fever may initiate the disease. Occasionally, there is coughing and hoarseness, due to œdema, swelling, and venous congestion of the laryngeal mucosa. Dyspnœa and dysphagia sometimes occur. As the disease progresses there is redness of the overlying skin, and in some of the cases toxic goitre symptoms develop.

The prognosis of the disease is excellent if it is recognized early. The treatment is that used in any acute inflammation, namely supportive and pain-relieving. If signs of suppuration develop, incision and drainage is the best treatment, and this is best accomplished through the ordinary collar incision, with retraction of the strap muscles followed by incision and tube-drainage. R. V. B. SHIER

**Staphylococcal Suppurative Nephritis (Carbuncle of the Kidney).** Dick, B. M., *Brit. J. Surg.*, 1928, xvi, 106.

Some twenty-seven cases of carbuncle of the kidney are reported in the literature. The commonest portal of entry for infection into the circulation for the *S. aureus* is a skin carbuncle, boils, or smaller multiple septic skin foci, but the portal of entry may be from a whitlow, a patch of eczema, or an acute osteomyelitis. The earliest age at which the disease has been known to occur is ten years. Only in one recorded case was the infection bilateral.

The symptoms come on gradually with malaise, headache, loss of appetite and elevation of temperature. The patient may have repeated rigors. Pain may be present at the onset, but often does not appear for a considerable time after the other symptoms. It is of a gnawing character, and is confined to the loin, and the side of the upper abdomen. As the disease progresses, the patient becomes extremely ill and sweats profusely. The bowels are as a rule very constipated. The abdominal muscles on the affected side show diminished respiratory movement, and, on palpation, there is defensive boarding, and a very ill-defined mass may be detected in the lumbar region. The leucocyte count is elevated, but, as a rule, microscopic examination of the urine is negative.

A valuable aid in the diagnosis is the history of a skin lesion. Pyelography should prove useful in determining whether a perinephric abscess has arisen from a renal carbuncle, and the discovery of a filling-defect in one or more calices would suggest an intrarenal origin of the abscess.

The treatment by nephrectomy is the most effective way of eradicating the disease, but, when the carbuncle is small, some cases have been treated by a localized resection of the involved area of kidney, while some of the abscesses seen at operation have been only drained.

R. V. B. SHIER

**Auto-Transfusion, with Account of a Case.** Denni, H. B., and Kinsella, V. J., *Brit. M. J.*, 1928, ii, 568.

The authors feel that auto-transfusion in surgical emergencies is a measure which has not received the notice it deserves. A case in which its value was demonstrated to them was as follows: A boy of twelve years had fallen and sustained fractures of the arms and skull; the abdomen was apparently uninjured and the patient had no symptoms in that region. A few hours later, however, he showed definite signs of severe intra-abdominal hæmorrhage, and his condition soon became desperate. The hæmorrhage had evidently been insidious in onset. He was taken to the operating-room and the abdomen was opened. A large quantity of fluid blood was found in the cavity and this was quickly ladled out and dropped into citrate solution. In the meanwhile Dr. Kinsella opened a vein and reinfusion of the citrated blood from the abdomen was begun at once. The source of the bleeding was found to be a tear in the pedicle of the spleen. The bleeding appeared to stop as the transfusion proceeded, and in a short time the patient's condition showed marked improvement and he made a rapid and uneventful recovery.

It is suggested that reinfusion of patient's blood might be used more often than is done. Experience has shown that blood may thus be used even after lying in the abdomen for a considerable time. The method has been advocated in many conditions, such as ruptured ectopic gestation. It has also been used in splenectomy where in addition to his blood dyscrasia the patient suffers from much blood loss and shock. As soon as the spleen is removed it is held over a vessel of citrate solution and the blood squeezed out of it. This blood is then reinfused. Loyal Davis and Harvey Cushing have also found reinfusion useful in major cranial operations. Suction is used to remove the blood from the field of operation, and even towels and swabs may have their contents rung out.

It is stated that even citrate solution is not a necessary adjunct, as the blood has been given mixed with saline or even unmodified. But the citration is the most certain method of preventing clotting and it also permits of the injection being given slowly. H. E. MACDERMOT

## PATHOLOGY

**On the Supposed Relationship between the Viruses of Herpes Febrilis and Vaccinia.** Bedson, S. P., and Bland, J. O. W., *Brit. J. Exper. Path.*, 1928, ix, 174.

Gildermeister and Herzberg (1925, 1927) have

produced evidence which, if correct, would indicate a close relationship between the viruses of herpes febrilis and vaccinia. Their work suggests that possibly the partial cross-protection, which they claimed to have demonstrated, might have been overlooked by earlier workers. Further, they reported neutralization experiments with specific sera which supported their findings *in vitro*. The authors undertook to examine into this.

Their first series of experiments was carried out to elucidate the question of cross-immunity. Guinea-pigs were inoculated on the depilated hairy skin with herpes or vaccinia virus. After allowing a suitable interval for recovery from the primary infection they were tested for immunity with the same virus, and if the result of this test was satisfactory, the second virus was titrated on them. Control titrations were made on normal animals. The vaccine virus was titrated on herpes-immune guinea-pigs, and herpes virus on vaccinia-immune animals. Little difference was found between the results of titration of herpes virus on normal and vaccinia-immune pigs and of vaccinia virus in normal and herpes-immune animals. Any slight differences that did occur might be explained as falling within the limits of experimental error.

A second set of experiments was carried on to investigate the question of cross-neutralization. Anti-herpes serum, obtained by hyper-immunization of guinea-pigs, was diluted one-half with M/50 phosphate solution $p^H$ 7.6 and mixed with equal quantities of various dilutions of vaccine virus and after standing for one hour at room temperature the different mixtures were inoculated into pigs by scarification. Controls were made in which the anti-herpes serum was replaced by normal guinea-pig serum and also by the phosphate diluent.

Conversely, undiluted anti-vaccinia serum was mixed with equal parts of falling concentrations of herpes virus and inoculated by scarification after standing thirty minutes at room temperature. The herpes virus was a phosphate diffusate with a titre of 1/100. A control was made with normal rabbit serum. Also, vaccinia virus (titre 1/10,000), diluted 1/50, was mixed with falling concentrations of the serum and inoculated into guinea-pigs after standing one hour at room temperature.

Anti-vaccinia sera, undiluted, were mixed with an equal volume of herpes virus (titre 1/1000), 1/10, and inoculated. Controls were made with normal rabbit serum and phosphate. No inhibition of the vaccine virus occurred. The serum neutralization experiments fully confirmed the cross-protection experiments.

The authors think they have produced evidence to show that the viruses of vaccinia and herpes are unrelated.

A. G. NICHOLLS

## THERAPEUTICS

**Mercurochrome-220 Soluble.** Eyre, J., Notton, H. E. F. and Pope, Sir W. J., *Brit. M. J.*, 1928, ii, 238.

This is a report of experimental analyses of various preparations of mercurochrome. The investigators had been impressed with the fact that intravenous injections of mercurochrome frequently caused symptoms of mercurial poisoning when given in 1 per cent strength, while comparable doses of 0.4 per cent were relatively free from this objection. It appeared therefore that certain samples of mercurochrome obtained in the open market were more toxic than others and examination of the various products was accordingly undertaken.

First of all, the chemical constitution was analyzed and a surprising diversity of composition was found to exist amongst the four samples examined, the differences being caused by varying percentages of contaminating substances. These various samples were then tested on rabbits and the conclusion reached was that the toxicity appeared to bear a direct relationship to the purity of composition.

Some clinical observations were also carried out, the sample tested being that which conformed most nearly to the theoretical constitution of the drug. The general impression gained during the employment of this particular sample was that its therapeutic activity was similar to other types of mercurochrome used in previous years, but that it was distinctly less toxic.

The experiments and observations all point to the fact that the nearer mercurochrome approximates in its analytical results to its known chemical constitution, the better the preparation as regards therapeutic efficiency and low toxicity.

H. E. MACDERMOT

**The Therapeutic Action of Plasmoquinine and Plasmoquinine Compound in Malaria.** Manson-Bahr, P., *Lancet*, 1928, ii, 496.

During three hundred years quinine has been used as an anti-malarial specific with no radical changes in its therapy or results. It is well known that the parasite, especially that of the benign tertian type, may not be extirpated but only held in check by repeated courses of quinine over a period of years. Other cinchona compounds have proved no better. Moreover, definite individual intolerance to quinine exists and though intramuscular and intravenous administration may be used in some cases this is not always practicable or safe and an alternative drug has long been desired.

Plasmoquinine—a synthetic derivative of quinoline (alkylaminomethoxyquinoline) was used in tests against bird malaria (*Plasmodium præcox*). It was found to be sixty times as potent as quinine, especially acting upon the

sexual stages (gametocytes) towards which quinine is almost inert, but having less action on the sub-tertian types. In human malaria a dose of 0.06 grm. (gr. i) daily was found sufficient. Large doses cause cyanosis, abdominal pain, and other toxic effects. The spleen is reduced in size with great rapidity. Only one-tenth of the daily dose is excreted in the urine, and courses of one week each, with five days rest between courses, are necessary to allow elimination and avoid toxicity. It was later found that the addition of a small amount of quinine sulphate increased the potency to sub-tertian types and prevented toxic manifestations. This mixture is called plasmoquinine compound, and used in tablets. The formula is: plasmoquinine, 0.01 grm. (gr. 1/6), and quinine sulphate, 0.125 grm. (gr. ii).

The dosage is important. The following routine is suggested for benign tertian or quartan: for one week, 2 tablets of plasmoquinine compound three times daily; four more courses, with 4-day intervals, giving 12 tablets daily. For sub-tertian types: for five days, 2 tablets thrice daily, with 4 days' interval; five more courses of 5 days, with 4 days' intervals.

Disintegration of the crescents is seen after 8 tablets of plasmoquinine compound, when they may persist one month under quinine.

Eighteen cases of the benign tertian type are cited. All showed rapid improvement with contraction of spleen, even two cases which were intolerant to quinine. Eleven cases of the sub-tertian type were less satisfactory but the results were as good as with quinine. One case of the quartan type, with relapses for four years, has had none since a course of plasmoquinine compound.

It is concluded that there are not sufficient grounds for stating that plasmoquinine compound will replace quinine, but it offers an efficient substitute in patients with an intolerance, being tasteless, easily tolerated, and showing a negligible effect on digestion.

J. B. ROSS

**Quel Doit-être Actuellement le Traitement des Cancer du Sein. (What is the Proper Treatment of Cancers of the Breast?)** Bérard, L., *Strasbourg Médical*, 1927, vii, 116.

This author first comments on the considerable variations in malignity that characterize the various tumours of the breast. Those in which the cells and their arrangement are irregular, without secretory functions, with numerous and irregular mitoses, and with marked hyperchromatism of their nuclei, are much more malignant than, say, the adenocarcinomata, in which these characters are not nearly so marked. The malignity is also more marked in the case of cancers affecting young women, and when the growth appears during pregnancy, or *post partum*. Before one can lay down precise rules for therapy in cases of cancer of the breast it is necessary to know how these various types react to the therapeutic agent. Actually, the probability of cure depends above all on the early institution of treatment. If we can get the cases within two months of the appearance of the growth we can expect that the cures, after five years, will exceed 75 per cent. Treatment is directed to the destruction *in loco* of all the neoplastic cells in the tumours and in the lymphatic districts of the corresponding side of the thorax. Surgery gives, on an average, 35 per cent of cures, observed after two years; and 25 per cent, after five years. It is always of advantage to precede and follow operation by methodical radiotherapy. One should irradiate the whole antero-lateral region of the hemithorax, divided into five fields, mammary, perimammary, axillary and subclavicular, with moderate intensities (140 to 180 thousand volts), with half a centimetre of copper as a filter, at repeated seances, the length and frequency of which will depend on the degree of resistance of the patient.

Preliminary radiotherapy is valuable for sterilization of the tumour and the lymphatics. Operation produces traumatic lesions of the cells of the region which hampers their means of defence and the useful effects of radiation. Recurrences should be treated like the primary lesions: first of all, x-ray or radium therapy at a distance, then surgical removal of all that can be extirpated without great destruction of the part.

Inoperable tumours and their metastases can be greatly benefited by the use of these physical agents, which are able notably to prolong life, lessen suffering, and sometimes make palliative operations possible.

A. G. NICHOLLS

**Ueber die Prophylaxe der Varizellen. (On the Prevention of Varicella.).** v. Kesmarszky, K., *Arch. f. Kinderheilkunde*, 1928, lxxxv, 1.

In the Children's Clinic of the Royal Hungarian Elizabeth University in Pesth they have been endeavouring to obtain protection against varicella by the use of blood taken within the first thirty-six hours after the appearance of the rash from patients suffering from that disease. The freshly drawn blood is mixed with one-tenth its volume of a 5 per cent citrate solution, and 0.1 c.c. is injected intracutaneously. Of 51 children of all ages from two months to fourteen years, who had been exposed to infection, 50 escaped (98 per cent).

The procedure is simple, efficacious, and not followed by unpleasant or dangerous consequences. That the infection of varicella is not transmitted from the ill to the well by this

treatment is thought by the author to be due to the dilution of the blood or to the weakening of the virus contained in it. Possibly, though this is not suggested, it may be due to the fact that an exceedingly small amount of blood is injected, and this into the skin where absorption must be slow, giving time for the local defensive mechanism to get into action.

The duration of the immunity so produced is unknown. The author in one case observed the development of what appeared to be a varicellous herpes zoster eight months after injection.

The method is, of course, particularly useful in cases where children are known to have been exposed to infection in institutions, or where one member of a family has been attacked by the disease.

A. G. NICHOLLS

**Die rohe und geröstete Kaffeebohne in der Therapie. (Raw and Roasted Coffee-beans in Therapeutics).** Petoe, A., *Die Medizinische Welt.*, 1928, xxv.

After the continued administration of the powdered green coffee bean an increase in the calcium content of the blood is observed, due probably to the citric acid in the bean. The blood picture in anæmia is favourably influenced by green coffee.

The green coffee is administered either as a powder in doses of 2 to 3 grams, or as a maceration prepared as follows. One hundred and fifty grams of green coffee are broken up in a mortar or ground in a mill, covered with 500 c.c. of water, and allowed to stand over night. In the morning the mixture is filtered and one to three teaspoonfuls of this extract form a dose.

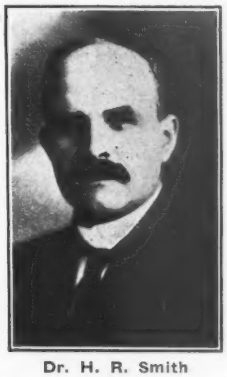
The roasted coffee bean can be given as a powder in half gram doses, or the patient can be instructed to chew four of the beans. The author states that when a "cold" is impending the prodromal symptoms can be cut short by three teaspoonfuls of the maceration taken three times in the day. In the case of acute rheumatic fever the local lesions and the temperature are favourably influenced. Here, the patient is advised to drink a tumbler of the maceration in the morning on an empty stomach. In chronic articular rheumatism 0.5 grm. of the pulverized raw coffee is ordered six times a day. The unpleasant symptoms that are so often attributed to the weather are speedily relieved. In the nausea and vomiting of acidosis and vagus irritation coffee seems to be almost specific. In cases of the vomiting of pregnancy and in train- and sea-sickness the author advises the sufferer to chew slowly three or four roasted coffee beans.

A. G. NICHOLLS

# Obituaries

**Dr. Henry Richard Smith.** After a short illness of three days only, one of the best known and most highly respected physicians of Edmonton died on October 24th, 1928, from erysipelas complicated with streptococcic encephalitis. Still in the prime of life, of vigourous constitution and powerful physique, his sudden death came as a great surprise and shock to his medical confrères as well as to the whole community.

Born in New Hamburg, Ont., on September 11, 1873, of English parentage, Dr. Smith obtained his preliminary education at Woodstock Collegiate Institute and Albert College at Belleville, after which he studied medicine at Trinity University, Toronto, graduating in the class of 1899. The next two years were spent in post-graduate study at Edinburgh and London, and as house-surgeon in Toronto General Hospital. In 1901 he came to Alberta and practised for a year and a half at Star, removing to Edmonton where he has resided continuously for twenty-five years, taking an active part in the life of the community. In politics he was a staunch Conservative, at one time being elected President of the Conservative Association. In civic affairs he took a close interest, being elected a member of the City Council for the years 1913 and 1914. Always interested in medical matters, he took an active part in the local medical association and became President of the Alberta Medical Association in 1910. A member of the McDougall Church, he had been closely associated with the work of Alberta College, having been Chairman of the Board since 1913 and of the building committee. To his untiring industry and energy, not a little of the success which has attended this fine teaching institution is due. Since 1921 Dr. Smith held the position of Medical Superintendent of the City Hospital Board, having charge of the Royal Alexandra and Isolation Hospitals.



Dr. H. R. Smith

Under his careful and tactful management, combined with rare executive ability, these hospitals have reached the highest standard of efficiency and service, while at the same time the annual deficits have gradually been reduced till at the present time the institutions are practically self-supporting.

In 1901 Dr. Smith married Martha Doyle, a daughter of John Doyle, of Elora, Ont. She died in 1903, leaving one daughter who is now Mrs. Fred. Jackson, of Clover Bar district. In 1906 Dr. Smith married Mabel Rife, a daughter of David Rife, of Hespeler, Ont., who survives him with one son and two daughters, Howard and Constance, who are students of

Alberta University, and Margaret at home. Two sisters, Mrs. Mabel E. Davis and Mrs. Eliza Smith, of Toronto; and two brothers, F. C. Smith, of Lamont, Alta., and J. H. Smith, C.E., of Colombia, South America, also survive. T. H. WHITELAW

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**Dr. Hugh Ross** passed away at the home of his son, Mr. Neil Reginald Ross, in Boston, Mass., on Saturday, November 3rd. The body was taken to Clifford on Monday, November 5th, and interment was made in Clifford cemetery.

Dr. Ross was born on November 11th, 1845, at Brucefield. His father, Neil Ross, was the first settler in that part of Huron Tract, and his elder brother, Donald Ross, was the first white child born between London and Goderich. Dr. Ross was educated at the rural school near Brucefield, and at the grammar school

Dr. Hugh Ross

in Clinton. After teaching school for two years, he attended Trinity College, Toronto, from which he graduated with honours in 1872. In November, 1873, he married Mary Bailey, of Toronto, who predeceased him in May, 1912. He spent fifty-five years in the practice of medicine, having gone to Clifford in 1881 and remained there in active practice until 1927 when he sold his practice to Dr. A. F. Thaler.

He leaves to mourn his loss one son, Neil Reginald; four daughters, Mesdames Guaggenti and Creighton, the Misses Caroline and Margaret; and one sister, Mrs. Macdonald, of London, widow of the late Dr. Peter Macdonald of Wingham. A. F. THALER

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**Dr. Eugène Latreille.** One of the best-known Montreal practitioners died on November 9, 1928, in the person of Dr. Eugène Latreille, Professor of Pathological Anatomy at the University of Montreal, one of the consulting physicians of the Hôtel Dieu Hospital, Officier d'Académie (France), member of the Federal Medical Bureau, late President of the Société Médicale.

Dr. Latreille died suddenly in his office, 3478 St. Denis Street, shortly after six o'clock at night. He had been ill for three years from high blood pressure and cerebral hæmorrhage, but that had not prevented him from giving consultations at his home. A few minutes before his death he had just dismissed some patients.

He was forty-nine years of age. Born in Montreal, he studied at Laval, practised in the local hospitals and then went to Paris, where he entered the Faculty of Medicine as a student and was received a Doctor of the Faculty of Paris after the regular curriculum. On his return to Montreal, he built up an extensive practice.

He was appointed to the Chair of Pathological Anatomy in the Université de Montreal in the year 1910, following the resignation of Prof. E. St. Jacques, and he discharged the activities of this post with great zeal and efficiency until 1916, when his failing health led to his replacement by the distinguished scientist Professor Masson, late of Strassbourg.

Dr. Latreille was an active contributor to the proceedings of the Société Médicale de Montreal and prominent in the editorial management of *L'Union Médicale*, the local organ of the French profession in Montreal. By his effort also he did much to build up and re-organize the pathological museum of the Unicersité de Montreal after its damage by fire in the year 1916, and in this connection he maintained intimate and fruitful relations with the management of the Pathological Museum of McGill University and the Exchange Department of the International Association of Medical Museums.

Dr. Latreille is survived by his widow, formerly Miss Berthe Lamontagne; Madeleine, a daughter; Mrs. D. C. Cartier, Mrs. Alphonse Lamy and Miss Aldea Latreille, sisters; and Dr. Aimé Lamontagne, a brother-in-law.

### AN APPRECIATION

Three years ago Latreille was suddenly seized with an attack, which he himself was able to diagnose as cerebral hæmorrhage. At that tragic moment disappeared one of the finest figures in the medical profession of Canada. His life since was a brave struggle against the progression of his malady. Now the dramatic contest is over and Latreille is no more.

Always interested in music, those who knew him at the university will remember with what mastery he could conduct an orchestra or a chorale. If he had pursued his bent he would have progressed as far as he eventually did in his chosen profession, medicine.

While pursuing his studies at Paris he developed a talent for pathological anatomy and clinical medicine which became a veritable passion with him. His thesis for his doctorate "Contribution à l'étude des modifications de la surrénale", Paris, 1907, proved that he did not fear laborious tasks; on the contrary, complicated situations always interested him; he looked for the rare cases, the difficult diagnoses; he had scientific curiosity. He was, in fact, an artist in medicine as he would have been in music.

Teaching brought the greatest satisfaction to Latreille. He enjoyed it, not only for the pleasure of communicating his knowledge to his enquiring pupils, but because it called for a sort of intellectual gymnastics in compelling careful preparation of his theme.

Of humble origin, like most Canadians, for very few can claim descent from the loins of Jupiter, Latreille was essentially the aristocrat. Yet, those who knew him best will recall that he could unbend and give himself with abandon to the most animated discussion on many out of the way topics.

My old friend and comrade carries with him the unanimous tribute of admiration from all who had the privilege of knowing him.

The Université de Montréal will cite him as an example to future generations; the Hôtel Dieu will never forget the void created by his departure; and his pupils will long remember his authoritative lectures; the Société Médicale de Montréal will often recall the numerous brilliant communications which he made to it; and the Editorial Board of *L'Union Médicale* will realize that they have lost a colleague whose writings were always remarkable for their originality.

Latreille did much to elevate the character of our budding Canadian medical science. P. Z. RHÉAUME

**Dr. Raoul Masson.** One week after the sudden death of Professor Latreille, the faculty of medicine of the University of Montreal lost another of its members in the person of Dr. Raoul Masson, who died suddenly at the close of a meeting of the medical board of Ste. Justine Hospital, of which he was chairman. Death was due to heart failure.

Dr. Raoul Masson was born in Montreal, February 6, 1875, the son of Joseph Edouard Masson, of Lake Masson, St. Marguerite, Que. He studied at Terrebonne and St. Mary's Colleges, then at Montreal College and at Laval University of Montreal. He was admitted to the practice of medicine in 1902, with honours, and went to Europe, where he specialized in the study and treatment of the diseases of childhood.

The late Dr. Masson was Professor of Pædiatrics at the University of Montreal, professor of child hygiene at the provincial schools of domestic science; governor of Notre Dame and Ste. Justine Hospitals, of which last-named hospital he was one of the founders, some years ago. He always took an active part in the fight against infant mortality, and was a firm believer in the parochial free milk stations for indigent mothers.

One of the administrators of the Masson Estate, he was also vice-president of the Société Médicale de Montréal, member of the Cercle Universitaire, the National A.A.A., the Kiamika Hunting and Fishing Club, the St. Denis Club, and the officer's mess of the 65th Regiment, C.M.R. Mrs. Masson, having predeceased her husband in April last, he is survived by one son, Léon Masson; and by two brothers, Leopold Masson, of Montreal, and Léon Masson, of Terrebonne.

AN APPRECIATION

By the most untimely death, on November 14th, of Dr. Raoul Masson, who was Professor of Pædiatrics at the University of Montreal, and of Clinical Medicine at Ste. Justine's Hospital, the medical faculty has lost one of its most distinguished members.

Dr. Masson will be remembered not only by the medical profession but also by the public, who recognized in him a most remarkable personality. He was a leader, and a very active one, in the fight against infantile mortality, and only in the afternoon before his death he had received about forty mothers with their children, at the Baby Clinic of the Sacred Heart Parish, leaving the clinic almost exhausted a few hours before his death.

Of a most amiable character, Dr. Masson was well liked by all those who had the pleasure of knowing him, both professionally and socially, and was recognized as a guiding spirit by all students attending his clinics.

His loss is most regretted and will be keenly felt.

GASTON LAPIERRE

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**Michael Thomas Sullivan, M.D., C.M.** The sudden and unexpected passing of Dr. M. T. Sullivan of Glace Bay, which took place at the Halifax Hotel on the morning of November 18, 1928, came as a shock to all members of the Medical Society of Nova Scotia. For more than 25 years he has been almost our most constant attendant at annual meetings and only the day before his death he expressed to the secretary of the Society his great regret that he was unable to be with us at our 75th anniversary meeting. In 1920 he was elected a vice-president of our Provincial Society and he was its president in 1921 when the rennaisance of the Medical Society of Nova Scotia took place. Our present day organization owes much to the wisdom and energy of Dr. "M.T.", as he was familiarly called.

Dr. Sullivan was born in Glace Bay on March 13, 1874, a son of Michael and Susan (Lott) Sullivan, formerly of Sydney. He received his education at the common schools of Glace Bay and then entered St. Francis Xavier College. He graduated from the medical faculty of McGill University in 1901 and at once started practice in his home town. To few men is it permitted to make good, as we use the expression, to the extent that did Dr. Sullivan. At that time certain men stood very high in the esteem of that community. Drs. McKay and McKeen had been the strong men in the profession and very shortly Dr. Sullivan was called upon to fill their places. That he did this with honour to the profession, with credit to the hospital in which he did his best work, and to himself, is vouched for by any one who knows anything of Glace Bay.

It was no small task that was set before this young medico when two great men passed along and handed him the torch. Ability, knowledge, personality, confidence, honesty, and the faculty of seeing weak points and how they could be overcome, enabled him to become the presiding genius, if we may use the expression, of St. Joseph's Hospital. Just here it is only fair to note that much of Dr. Sullivan's influence in both town and hospital matters was due to the wise and kindly counsel of Mrs. Sullivan, whose efforts for community welfare in Glace Bay are recognized by all.

We are flooded with critics and knockers but "Mike Sullivan" always told you how you should do the job he brought under fire. He never was a destroyer, he was always trying to build up. Perhaps here lies the secret of the great influence such men as Dr. Sullivan have in their respective communities. Certainly no citizen of Glace Bay was any more influential than he. He was always building up, whether in his own professional work, in the town or county, in St. Joseph's Hospital, the medical societies, the Board of Trade or the activities of his Church; he was always looking forward to bigger and better things.

Dr. Sullivan was an executive member of the Associated Boards of Trade of Cape Breton Island and a member of the Executive of the Cape Breton Tourist Association. He belonged to the Glace Bay Council of the Knights of Columbus, the Catholic Mutual Benefit Association and the Ancient Order of Hibernians. He was married on June 11, 1902, to Miss C. McLean of Antigonish. He is survived by Mrs. Sullivan and their six children.

His funeral took place in St. John's Church, New Aberdeen, on Wednesday, November 21st, conducted by Dr. H. P. McPherson, vicar-general of the Diocese of Antigonish, representing His Lordship Bishop Morrison. The Medical Society of Nova Scotia extended to Mrs. Sullivan and family sincere sympathy and sent floral offerings as did also the local Branch Society.

The Halifax press published several fitting tributes from prominent persons. From these we may quote the following by Dr. S. R. Johnston, President of the Halifax Medical Society.

"In spite of the long years of practice, during which he soon became recognized as one of the outstanding surgeons in the province he always found time, through personal sacrifice, to take part in educational and other voluntary medical activities. He was a member of the American College of Surgeons and, in this connection, did much to further the scheme for hospital standardization, the value of which is now so universally recognized. It is only little more than a year ago since he read, before the Halifax Medical Society, a valuable paper on "The Surgery of 25 Years in a Mining Community"—a paper filled with keen observations drawn from these long years of hard, laborious work under trying circumstances.

Regarding his sterling qualities as a man, much might be said. The beautiful words of Browning would appear fitting:

'One who never turned his back, but marched, breast forward,
Never doubted clouds would break,
Never dreamed, though right were worsted, wrong would triumph.

Dead, we fall to rise, are baffled, to fight better;
Sleep, to wake'.''

His passing makes a gap in the ranks of the medical profession in this province which will not soon be filled. The heartfelt sympathy of the Halifax Medical Society goes out to his sorrowing widow and family.

S. L. WALKER

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**Dr. Samuel McMurrich McLay** died in Woodstock on November 2, 1928. A graduate of Toronto University in 1910, Dr. McLay had been intimately connected with the professional activities of Woodstock for nearly twenty years, and was a practitioner of exceptional merit. With the outbreak of war Dr. McLay went overseas and gave freely of his services for the duration of the conflict. Returning to Woodstock, he resumed his practice, and soon became interested in the many problems of education and civic welfare. He had been Chairman of the Board of Education for some years, only slackening up in his activities when a trying illness of many months' duration had made this necessary.

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**Rev. William T. Bruce, M.D.**, Truro, N.S. At the advanced age of 87 years there passed away, after only a week's illness, a stalwart of the Presbyterian Church that the younger generation of medical men had forgotten. Dr. Bruce was born at Middle Musquodoboit, graduated in Arts from Dalhousie, in Theology from Pine Hill, and in Medicine from Edinburgh, for the purpose of becoming a medical missionary. Poor health forced him to abandon this objective and he devoted many years of service to many churches in Nova Scotia, where he was greatly beloved. His health forced him again, some twenty years ago, to retire from active preaching, and he has lived a quiet life in Truro since that time. His wife predeceased him in 1918. Six sons and two daughters survive.

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**Dr. Archibald A. Chisholm**, Manuels, Nfld. The death occurred on October 7th, of Dr. A. A. Chisholm, a native of Antigonish County, N.S., a son of the late Mr. and Mrs. Archibald Chisholm of Beauly. He graduated from the University of Baltimore in 1897, and was sixty-two years of age. He is survived by his wife, formerly Miss Margaret MacNeil, sister of Archbishop MacNeil of Toronto, and one son and daughter. The son, William, is now a student at St. Francis Xavier University.

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**Dr. R. Courchesne.** Following an attack of pneumonia, Dr. Robert Courchesne, died at his home, on October 24th, in his thirty-fourth year. Dr. Courchesne was born in St. François du Lac, and had practised in Montreal for five years. He was a graduate of St. Mary's College and the University of Montreal.

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**Dr. N. A. Davis**, of Madawaska, died late in September, 1928. He was a graduate of Queen's University in 1898, and had practised in Madawaska for thirty years.

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**Dr. J. H. Duncan** died at Chatham, on September 22, 1928. He was M.B. of the old Toronto School in 1881. Dr. Duncan had practised continuously in Chatham for forty-seven years, and was well known as a hard working general practitioner.

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**Dr. Margaret Gordon**, one of the best known of the medical women in the country, died on September 22, 1928. She graduated at Trinity in 1898 and was associated with the Women's Medical College up to the time of its absorption by the University of Toronto. A keen worker, one of the first women to see that women must fight for suffrage rights, and one of the first to lead in that fight, Dr. Gordon was always the centre of any movement which had to do with the betterment of woman's condition.

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**Dr. Peter L. Graham**, one of the oldest of the medical profession in the Province of Ontario, died at Lobo, on November 4, 1928. He was a graduate of Trinity College, Toronto, in 1877. Dr. Graham practised at Lobo for more than fifty years and was known as a fine type of the old physician.

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**Douglas B. Kennedy, M.C., M.D., D.P.H.**, died in the Toronto General Hospital on September 25th. He was born in Pembroke, Ont., and graduated in Medicine at Queen's University in 1902. After leaving college he served as an interne in the Water Street Hospital, Ottawa, for a year, and was then appointed ship's surgeon by the Elder-Dempster Line. In 1907 he was engaged as physician in connection with the construction work of the Grand Trunk Pacific Railway. In 1913 he was on the staff of the Rotunda Hospital, Belfast.

During the war he was attached to the Sixth Field Ambulance, and was mentioned in despatches several times, being awarded the Military Cross in 1917.

After demobilization he returned to his former occupation as medical officer on various pieces of construction work. He received the Diploma of Public Health in 1923 from Toronto University. Dr. Kennedy was a brilliant diagnostician and an able industrial physician.

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**Dr. James Palmer Peake** died suddenly at his late residence, Ashern, Manitoba, on November 11th, in his sixty-second year. Dr. Peake was a native of New Brunswick, and graduated in 1896 from McGill University. His wife, who predeceased him, was a daughter of John Wilmot, Esq., and granddaughter of the late Hon. R. D. Wilmot, formerly Lieutenant-Governor of New Brunswick. Dr. Peake served in the late war as medical officer of the 78th battalion (Winnipeg Grenadiers), winning the Military Cross. He is survived by two daughters. The funeral took place on November 17th to Brookside Cemetery.

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We can increase our powers of observation by training and practice, and we can extend their range by means of special instruments and methods. We can increase our knowledge by study and experience, but can we improve our powers of judgment? I greatly doubt it. Judgment seems to be an inborn faculty, the result of a union of mind and character, which a man either has or has not, and it is almost as difficult to increase it as it is to add a cubit to his stature.—Robert Hutchison, *Brit. M. J.*, 1928.

# News Items

## GREAT BRITAIN

### The Medical Society of London

At the opening meeting of the Medical Society of London it was announced by the Hon. Treasurer that the famous John Ward Diary had been sold for £10,000. Of this sum £9,000, he said, had been invested, the remaining £1,000 going to the improvement of the Library.

### The National Association for the Prevention of Tuberculosis

The fourteenth annual conference of the National Association for the Prevention of Tuberculosis was held on October 15th and 16th, in the Great Hall of the British Medical Association House, Tavistock-square, London. Sir Arthur Stanley, as Chairman of the Council, formally opened the conference at 10 a.m. on Monday, when Dr. R. C. Ferguson, of Saskatchewan, introduced the subject of the occurrence of tuberculosis among primitive peoples. He was followed by Colonel J. J. Vassal, M.D., ex-director of health of French Equatorial Africa, and by Prof. S. Lyle Cummins, principal medical officer of the Welsh National Memorial Association. On Tuesday Sir Robert Philip introduced the second subject, being the principles underlying a scheme of anti-tuberculosis measures in any country. He was followed by Dr. Howard Holbrook, of Hamilton, Canada, and Dr. G. Lissant Cox, central tuberculosis officer for Lancashire. The discussion was continued on the afternoon of each day.

### Welsh National Medical School

The dispute between the authorities of this School and the Cardiff Royal Infirmary, where the students have hitherto done their clinical work, appears to be reaching a climax. Public opinion in South Wales is crystallizing on the side of the authorities of the medical school, whose efforts to provide adequate instruction for students in their final years have been nullified by the refusal of certain members of the staff to co-operate. Lord Aberdare, who has been the treasurer of the hospital for several years and a most generous subscriber to its funds, has resigned this post, giving the following reason: "The recent decision of the Council not to co-operate with the medical school is so contrary to all I expected of them that I feel bound to take this step." He has refused to reconsider his resignation and has suggested that the matter in dispute should be referred to Sir John Eldon Bankes. At a meeting of the Cardiff City Council, held on October 8th, Alderman H. M. Thompson asked the chairman of the Finance Committee when the committee were going to recommend to the City Council the withdrawal of the £2,000 subscription granted to the Cardiff Royal Infirmary, in view of the action of the executive body of that institution in arbitrarily withdrawing facilities necessary for the medical education of Welsh students. It seems probable that the embarrassments of this unfortunate school may shortly be relieved.

### Sir Charles Tomes

The death, on October 23rd last, of Sir Charles Tomes, at the age of 83, recalls the career of one who did much to raise odontology to its present position among the medical sciences. His work, however, was largely a development of what had been begun by his no less distinguished father, Sir John Tomes, of whom it has been said that "he began to practise dentistry when it was a trade, and left it a well-equipped profession; he showed that a dentist is capable of the highest kind of scientific work—that of scientific observation."

After a brilliant career at Oxford where he placed himself in the first class in the School of Natural Science, Sir Charles Tomes entered as a medical student at Middlesex Hospital, where his father, who was then on the staff as surgeon dentist, had studied before him. His studies on the development and structure of teeth were largely responsible for his being elected F.R.S. at the early age of thirty-two. Twenty years later his dental researches were recognized by election to the Fellowship of the Royal College of Surgeons of England.

The many tributes paid to him show him to have been a man not only of high scientific capacities, but one who also possessed and developed to a high degree an artistic sense and a keen interest in a wide variety of subjects.

## PRINCE EDWARD ISLAND

Drs. W. J. MacMillan, Charlottetown, and E. T. Tanton, Summerside, attended the annual meeting of the Medical Council of Canada, held on September 5th at Ottawa, as representatives of the Prince Edward Island Medical Council.

The Trustees of the Prince County Hospital, Summerside, have purchased for a nurses' home, the property across the street from the hospital, lately owned by Mr. F. A. Johnston. This is a very nice property with splendid grounds and will make an ideal nurses' home. The purchasing of this property will also release a number of private rooms for the use of patients, thus increasing the accommodation of the hospital.

The Extra Mural Post-Graduate lectures, under the auspices of the Canadian Medical Association, which were held at Charlottetown in the City Hospital on September 26th, were well attended. The lecturers were Dr. H. B. Atlee, gynæcologist and Dr. F. B. Mack, urologist, both of the teaching staff of Dalhousie Medical School, Halifax. The lectures were well presented and were essentially practical.

At the morning session Dr. Atlee took up the subject of abortion, which he treated in a very able manner. Dr. Mack dealt with urological symptoms in general and the importance of investigating these symptoms properly.

At the afternoon session Dr. Atlee discussed "Pelvic infection", and went into the treatment very thoroughly. Dr. Mack dealt with "Hæmaturia and pyuria" in an exhaustive manner. The lectures were illustrated by lantern slides.

The thanks of the meeting were conveyed to the lecturers by the Chairman, Dr. S. R. Jenkins.

J. A. MACPHEE

## NOVA SCOTIA

### A Medical Week at Halifax

From the fifteenth to the twentieth of October, the medical profession of Nova Scotia foregathered at Halifax for the seventy-fifth annual meeting of the Provincial Medical Society. The meeting was arranged to synchronize with the "refresher course" which the medical faculty of Dalhousie University provides every autumn, and one day of the week was set aside to celebrate the sixtieth anniversary of the birth of the faculty. The most harmonious co-operation between Society and University, coupled with the practical assistance of the Canadian Medical Association, combined to make the week an unqualified success and to provide several unusual and rather interesting features. Through the good offices of the Canadian Medical Association the profession of nearly every province in the Dominion was represented, while each Canadian Medical School, with but one exception, had its representatives in attendance at the distinctively Dalhousie functions.

The general arrangement of the program was similar to the refresher course of past years, the mornings being given up to clinics and the afternoons to formal lectures. At the afternoon lectures, however, Dr. L. R. Morse, President of the Medical Society of Nova Scotia, occupied the chair. Most of the clinics were by members of the Dalhousie faculty, but, on the other hand, most of the lectures were by visiting physicians, including Dr. M. G. Archibald, of British Columbia, Dr. George R. Johnson, of Alberta, Dr. William Boyd, of Manitoba, Drs. J. W. Crane and Alexander Primrose, of Ontario and Dr. W. W. Chipman, of Quebec.

At the dinner of the Medical Society, Drs. Primrose and Routley conveyed the greetings of the Canadian Medical Association, while several provincial societies were officially represented as follows: British Columbia by Dr. Archibald, Alberta by Dr. Johnson, Manitoba by Dr. Boyd, Ontario by Dr. E. A. McQuade, Quebec by Dr. Chipman, New Brunswick by Dr. J. V. Anglin, and Prince Edward Island by Dr. H. D. Johnston. Each of these extended felicitations on behalf of his Society, as did the representative of each of a number of the branches of the Nova Scotia society.

On Dalhousie Day, after the morning clinics, all in attendance were entertained at luncheon by the governors of the University. In the afternoon a ceremony of particular interest took place at the Dalhousie Health Centre when honourary degrees were conferred on Dr. Finlay MacMillan, the only surviving member of the first class of graduates (1872), and upon Dr. Alexander Primrose and Dr. W. W. Chipman, both natives of Nova Scotia. Dr. George H. Murphy, on behalf of the Halifax branch of the Medical Society, presented a tablet in memory of the original faculty. For the Cape Breton branch, Dr. J. C. Morrison asked the University to be custodian of enlarged photographs of Lt.-Col. R. C. McLeod, Lt.-Col. T. Howard MacDonald, Major Walter MacLean and Major Kenneth A. MacCuish, members of the Cape Breton profession who gave their lives in the Great War. To the university, various donors presented enlarged photographs of former members of the medical faculty, and a bust of Sir Charles Tupper, who was actively identified with the establishment of the school. In the evening, a Dalhousie medical dinner was held when, besides local oratory, short congratulatory speeches were heard from Major-General Foster, (representing the University of Alberta), Dr. J. J. Guérin, (University of Montreal), Dr. W. W. Chipman, (McGill University), Dr. J. V. Anglin, (Queen's University), Dr. Alexander Primrose, (University of Toronto), Dr. J. W. Crane, (University of Western Ontario), Dr. William Boyd, (University of Manitoba). Laval University telegraphed regrets at inability to send a representative, but sent cordial greetings.

The tablet referred to above bears the following inscription:

IN MEMORY OF THE FOUNDERS OF THE
FACULTY OF MEDICINE
OF DALHOUSIE UNIVERSITY
1868

| | |
|---|---|
| W. J. Almon, M.D., Pres. | Edward Farrell, M.D. |
| A. P. Reid, M.D., Dean | A. H. Woodill, M.D. |
| A. G. Hattie, M.D. | J. D. Ross, M.D. |
| G. Lawson, Ph.D., LL.D. | T. R. Almon, M.D. |

Rev. James Ross, Principal, Ex-officio.
"THEY BUILDED BETTER THAN THEY KNEW"
Placed by the Halifax Branch of the
Medical Society of Nova Scotia, 1928.

The clinics were held mostly at the Victoria General Hospital, though the Children's and the Grace Maternity Hospitals each shared. Except on Dalhousie Day the afternoon lectures were given at the new Lord Nelson Hotel, which was completed just in time to permit of its utilization as headquarters for the Medical Society and which was reserved for that purpose. This fine hostelry was, in effect, a medical club for the week.

In addition to the functions already mentioned, a complimentary luncheon to honourary members deserves special notice. While the number of honourary members who could attend was small, the occasion was notable on account of the presence of Dr. A. J. Cowie, who, though upwards of ninety-three years of age, made a vigorous and interesting speech.

Numerous minor functions were arranged for the wives and daughters of visiting doctors, and on Friday evening both sexes took part in a very enjoyable dinner dance.

The showing of the film illustrating the action of radium on the animal cell, arranged by courtesy of Dr. Routley for the Canadian Medical Association, attracted much favourable comment. This was thrown open to the public, and was attended by large numbers of the laity.

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Tenders are asked for the erection of a new wing to the Payzant Memorial Hospital, Windsor.

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At the annual meeting of the Associated Boards of Trade of Cape Breton, held early in October, Dr. M. T. Sullivan, Glace Bay, was elected President, and Dr. Nat. MacDonald, Sydney Mines, Vice-president.

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The Halifax Society of McGill Graduates tendered a complimentary luncheon to Mr. E. W. Beatty, Chancellor of the University, at the Lord Nelson Hotel on October 23rd. Dr. A. E. Doull is President, and Dr. J. C. Acker is Secretary of the Society.

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An addition is to be made to the Soldiers' Memorial Hospital, Middleton, to release room in the present structure for the accommodation of an x-ray plant which has been presented to the hospital by Drs. J. A. Sponagle and L. R. Morse.

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A bulletin of the American College of Surgeons, recently issued, announces that eleven of the twelve hospitals in Nova Scotia, which have a capacity of fifty or more patients, have been "fully approved."

These are the Highland View Hospital, Amherst; St. Martha's Hospital, Antigonish; Glace Bay General and St. Joseph's Hospitals, Glace Bay; Children's, Grace Maternity, and Victoria General Hospitals, and Halifax Infirmary, Halifax; Aberdeen Hospital, New Glasgow; City Hospital, Sydney; Yarmouth Hospital, Yarmouth. The New Waterford General Hospital has been "conditioned."

The new Hospital for Infectious Diseases, Halifax, was opened for the reception of patients on October 25th. Only a single patient had to be transferred from the old hospital. The new building, which is situated in the hospital area in immediate proximity to the Dalhousie Medical School, is well planned and admirably equipped. The normal accommodation is for forty-two patients, but this can be readily expanded to provide for fifty. There is abundance of open space about the building, and the orientation allows of all wards being flooded with sunlight. It may be remembered that there was considerable opposition to the erection of this hospital, and that a mayor of the city resigned because of the support given to the undertaking by the City Council. The credit for the origination of the enterprise, and for pushing it through to completion, is due principally to Dr. W. D. Forrest, Chairman of the City Health Board, who was indefatigable in overcoming difficulties and opposition of one kind or another.

The officers of the Medical Society of Nova Scotia, elected at the seventy-fifth annual meeting, are as follows: President, Dr. R. H. Sutherland, Pictou; Vice-presidents, Drs. G. W. T. Farish, Yarmouth, and A. Calder, Glace Bay; Secretary, Dr. Smith L. Walker, Halifax; Treasurer, Dr. J. G. D. Campbell, Halifax. Next year's meeting is to be held at Pictou.

An extended reference to the annual meeting of the Medical Society of Nova Scotia, with the several functions associated or combined therewith, will be found elsewhere in this issue of the *Journal*. The program attracted the largest attendance ever recorded at a meeting of the provincial society. Dr. Smith L. Walker, the energetic secretary of the Society, has received many well deserved words of praise for initiating and forwarding the scheme which was executed so satisfactorily.

Tetanus, which is by no means a common condition in Nova Scotia, has recently been responsible for two deaths in the province, both occurring in the vicinity of Bear River. In neither case was medical aid summoned early enough to permit of the successful use of anti-tetanic serum.

Dr. M. A. B. Smith, of Dartmouth, has gone to London for some months of study in the hospitals there. He will visit several European medical centres before he returns home.

Dr. Byers, of East Orange, New Jersey, who was associated with Dr. Pitkin in the production of spinocaine, was a recent visitor at Amherst, where he assisted at the first operation with spinocaine as the anæsthetic attempted in that town.

Dr. Evelyn Rogers (Dalhousie, 1927), after serving for a year as interne at the Englewood, New Jersey, Hospital, has accepted an appointment on the medical staff of the Nova Scotia Sanatorium, Kentville.

Early in November, a class of nine nurses graduated from the training school of the Nova Scotia Hospital. The large recreation hall of the hospital was brilliantly decorated for the occasion. The graduates were addressed in appropriate terms by Dr. K. A. MacKenzie. The ceremony was followed by a very enjoyable dance in which the nurses and their guests participated.

At the annual meeting of the Nova Scotia Medical Society Dr. A. C. Jost, Provincial Health Officer, was elected Chairman of a Committee on Historical Medicine. Two interesting letters from the late Sir Charles Tupper, M.D., were presented during the meeting to the archives of the Society. W. H. HATTIE

The Medical School of Dalhousie University announces the appointment as Assistant to the Chair of Pathology and Bacteriology of Dr. Clyde W. Holland a Dalhousie graduate of 1923. Except when doing post-graduate work in London, Dublin and New York Dr. Holland has, since graduation, been associated with the staff of the university. He graduated in Arts from the university in 1916.

The 22nd Field Ambulance Dinner was held at the City Club October 8, 1928. Col. H. A. Chisholm, Officer Commanding, presided with Major J. G. D. Campbell, as Vice, proposing the Toast to the King. Officers of the Ambulance present were: Captain S. H. Keshen; Prov. Lieut.. H. N. Gosse, and Prov. Lieut. W. J. Keating. Among the guests were Major Gorrsline, S.M.O., M.D. 6; Major Murray and Captains of the R.C.A.M.C.; Lieut. Victor Mader of the Artillery and Major C. S. Major, Quarter Master. A pleasant feature of the evening was the presentation, by Captain Keshen on behalf of the Ambulance, to Major Murray of a sterling silver fruit bowl, as an appreciation of his services during the Aldershot Camp of 1928. Colonel Chisholm commented on the very pleasant relations existing between the Militia and Permanent Medical services. The Ambulance now has a special Officers' Mess in the Armouries and Badminton winter contests will soon be under way. First Aid and other training will also be carried out for the men.

District Military Orders, M.D. 6, issued October 23, 1928, contain the following item:—

No. 9 (Reserve) Stationary Hospital, C.A.M.C. Major S. L. Walker to command the Hospital, with effect from the first of April, 1928. (M.O. 459/1928).

## NEW BRUNSWICK

The first extra mural team to visit New Brunswick this autumn received a flattering welcome throughout the province which was richly deserved.

Dr. R. R. Fitzgerald, of the Goitre Clinic of the Montreal General Hospital, classified the types of goitre commonly met with, emphasized obscure symptoms, and stressed the necessity for careful iodine therapy. He also stated that operation at the proper time was the one successful method of treatment.

Dr. D. S. Lewis, of the Royal Victoria Hospital, Montreal, needed no introduction to his audiences. He discussed œdema and illustrated his program by a well-planned lantern demonstration.

Both gentlemen handled their subjects with a facility that argued for their exact knowledge of the subject under discussion.

At a recent meeting of the Provincial Red Cross Society most encouraging reports were received from the outpost hospital at St. Leonard's which has pro-

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vided most necessary services which would otherwise have not been available. A special request was received for an organization of another outpost hospital at Clare in place of the present private hospital of Dr. LaPorte. There has been already a request for an outpost hospital on the Island of Grand Manan. These areas although not far removed from large centres are yet unbenefited by methods of rapid transportation. It is to be hoped that the Red Cross funds will be sufficient to provide these desired services.

At the meeting of the Provincial Government, held in Moncton on October 20th, Dr. J. A. Melanson was appointed to succeed Dr. G. G. Wherrett as Travelling Tuberculosis Diagnostician. His headquarters will be at River Glade. Dr. Melanson is a graduate of Edinburgh University and is a son of Hon. O. M. Melanson.

The delegation of Public Health Officers from New Brunswick to the meeting of the Canadian Public Health Association at Winnipeg included Dr. G. G. Melvin, Chief Health Officer, Dr. Wm. Warwick of Saint John, and Dr. C. W. McMillan, Provincial Tuberculosis Diagnostician. These gentlemen intend to take in the meeting at Chicago on their return journey.

Miss Mary F. Bliss, Superintendent of the Soldiers' Memorial Hospital at Campbellton, has resigned her position to accept a similar position in Guelph.

Dr. A. B. Walter, late of Cambridge, is at present doing some hospital work in Montreal previous to his removal to Saint John where he will practise in the future.

Dr. Geo. Skinner, of Saint John, has returned to his practice after a month's study in New York.

Drs. L. M. Curren, G. A. B. Addy, A. E. Macaulay and D. C. Malcolm attended a meeting of the American College of Surgeons in Boston.

Dr. E. W. Lunney, of Saint John, attended a meeting of the Canadian Anæsthetists' Society which was held in Boston in conjunction with the meeting of the New England Society.

Dr. J. M. Cruikshanks, of Saint John, sailed on September 24th to assume the duties of his new appointment as Medical Officer in charge of medicine and surgery in the British Government Hospital at Nassau, Bahamas.

Dr. J. Boyle Travers, of the staff of the Provincial Hospital, has been holidaying in Prince Edward Island.

At the meeting of the Canadian Public Health Association at Winnipeg, Dr. William Warwick, of Saint John, was elected Vice-President of the Association.

Dr. Mayes Case, of Saint John, has returned from a trip to Upper Canada and the Eastern States.

Dr. G. Clowes Van Wart attended the meeting of the American College of Surgeons at Boston.

Dr. Geo. M. Belyea has begun practice in Woodstock, where he will specialize in surgical branches.

The Boston papers announced the wedding of Dr. Levi M. Curren to Elizabeth McLean on October 10th.

Dr. and Mrs. J. V. Anglin were recently in Halifax. Dr. Anglin represented Queen's University at the Diamond Jubilee Celebration of Dalhousie University.

Dr. W. O. Chestnut of Hartland has been recently visiting his family and friends in the southern part of the Province.

A. STANLEY KIRKLAND

## QUEBEC

The fact that not one baby died at the Montreal Foundling and Baby Hospital, St. Urbain Street, during last summer—a time fatal to so many children—was cited as a proof of the health-giving conditions the little inmates enjoy at the hospital, where a reception was held recently, to show the new isolation cubicles, which have just been completed. The new ward of six cubicles has been made possible largely from the funds of "Violet Day" with special donations, notably that of Dr. A. D. Blackader, who furnished the glass partitions which make each cubicle sufficient unto itself. All babies, on first arrival, are put for two weeks into this isolation cubicle ward, so as to guard against infection being brought in. The cubicle gallery has the most modern hospital equipment, and its walls are mostly of the "vita-ray" glass through which the curative rays of the sun can penetrate. There is a sun parlor in the main building, where groups of children spend day and night with decided advantage to their health. There are usually some 70 children under two years of age in the institution, and their healthful condition is ascribed to the modern equipment of the hospital, and the personal care given under the expert supervision of Miss L. C. Phillips, the Superintendent, and her assistant, Miss L. I. Lawrence.

The new Bourget Sanatorium, a wing of the St. Jean de Dieu Hospital, Longue Pointe, was formally opened by His Grace Archbishop Gauthier. The new wing, which is a fireproof building in the form of the letter "H", is fitted with the most modern equipment and includes, in addition to wards for observation and treatment, nurses' class-rooms, laboratories and doctors' offices. In his address, the Archbishop pointed to the remarkable progress made by St. Jean de Dieu institution, and paid tribute to the University of Montreal for its large share in this work. Dr. Gaston de Bellefeuille, in reply, traced the hospital's history since its founding as the Longue Pointe Asylum in 1873, touching on the changes in treatment of the mentally diseased since that time. Other speakers included Dr. F. E. Devlin, Dr. A. G. Desloges, and Dr. L. E. Pariseau.

Colonel John McCrae, author of "In Flander's Fields", was honoured quietly in a private ceremony at McGill University, when a small oak tree, presented to McGill by the Teachers' College of the University of Georgia, was planted to his memory on Armistice Day. In the presence of a few intimate friends of the late Col. McCrae, the oak scion was rooted in McGill soil near the medical building where the poet served as a member of the staff of the faculty of medicine prior to going overseas. Brig.-Gen. Birkett presided at the planting, and an ode commemorating the poet and his poem was read by the author, C. Benedict. It was stated at McGill that, as the tree arrived from the University of Georgia so shortly before the actual planting, the ceremony was held privately because there was not time enough to notify many friends.

By a decision that all medical school inspectors in Montreal shall be employed full time by the city, whereas in the past some of them have given but a part of their time to these duties, the effect will be that the city will have an additional service equal to the engagement of three new inspectors. The Executive Committee received the resignation of Dr. J. E. Laberge, head of the contagious disease section of the Health Department. Dr. Gervais, assistant to Dr. Laberge, has been appointed to fill the vacancy, and Dr. Laberge retires on pension.

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Fifty new employes have been added to the Montreal health department since re-organization started in this service last spring. This, along with equipment, re-distribution of expenses, etc., means an added allocation for the health department of $150,000 a year.

The milk and meat inspection staffs are now completely re-organized, each under a supervisor. Three veterinaries have been added to the staff, who will divide their work between milk and meat.

Several inspectors have been added to the plumbing section, for examination of sanitary equipment in houses, etc., while the corps of school medical inspectors and school nurses have been filled since early fall.

Two supervisors of inspectors have been appointed to direct the work of the various food, meat and restaurant inspectors.

There remains to be appointed an assistant director of public health to assist Dr. S. Boucher, Medical Health Officer. This official will be named within a short time, it was stated, as the city authorities have a prospective nominee in mind.

All in all, the health department is now on an efficient working basis, and satisfies the conditions made by the Provincial and Federal Governments and by the American health authorities in regard to milk inspection.

GEORGE HALL

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## ONTARIO

The annual post-graduate course given under the auspices of the Alumni Association of the University of Western Ontario Medical School was attended by about one hundred doctors and was given at Victoria Hospital, London, in conjunction with the district meeting of the Ontario Medical Association. Clinics and lectures were given by Drs. J. A. Macgregor, Hadley Williams, F. J. H. Campbell, F. W. Luney, J. H. Geddes, R. A. Johnston, J. T. Bowman, G. C. Hale, J. A. Oille, Toronto, Dr. R. V. B. Shier, Toronto, O. M. Wilson, Ottawa and C. P. Hutchins, Syracuse, N.Y.

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Prof. Andrew Hunter, head of the Department of Biochemistry in the University of Toronto, has resigned and will go to Glasgow University in the spring, where he will hold the chair of physiological chemistry.

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The Ontario Hospital Association held its fifth annual convention in Toronto, on October 18th and 19th, meeting at the Academy of Medicine. A very comprehensive program was provided, one which dealt with most of the problems that are met with in hospital administration. Addresses were made by Canon Cody, by the Honourable Lincoln Goldie, by Dr. McEachren, Director of Hospital Activities of the American College of Surgeons, and by Dr. Harvey Agnew, Secretary of the Department of Hospital Service of the Canadian Medical Association.

One notes with interest the discussion on the subject "Sould nurses take oral orders from physicians?" and the debates on other problems equally important. On Friday afternoon the association visited the new convalescent hospital at Thistletown, built by the Hospital for Sick Children for its convalescent cases. The annual dinner of the association was held at the King Edward on Thursday evening.

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The new hospital at Thistletown, a hospital for the reception of convalescing children from the Sick Children's Hospital in Toronto, was opened on October 24th. A description of this hospital and the interesting ceremonies in connection with its opening will be given at a later date.

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The fifth annual St. Luke's Day service of the Academy of Medicine in Toronto took place in the

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chapel of Victoria College on October 21st, at 11 a.m. The service was well attended and the many members of the Academy who were present appreciated the kindness of the authorities of Victoria in permitting them to take part in the religious exercises provided, and to listen to the stimulating address delivered by Chancellor Bowles. The Academy has felt that the St. Luke's Day service should be continued, and announces that through the kindly consent of the authorities of the various college chapels about the university campus a service will be held each year in one or other of these chapels. It is planned to make St. Luke's day service a ceremony in which all Fellows of the Academy will be interested, and it is hoped that year by year one will see a larger and larger procession leaving the Academy building, suitably, or evenly gorgeously, gowned in academic robes, to take part in the religious exercises which celebrate the day set apart for Medicine's patron saint. N. B. GWYN

## MANITOBA

The corner-stone of the new Deer Lodge Military Hospital was laid, on October 27th, by J. T. Thorson, M.P., member for South Winnipeg. Dr. J. A. Amyot, Deputy Minister of Pensions and National Health, and Dr. Ross Millar, of Ottawa, were present at the ceremony. Dr. Amyot stated that the new building would serve to extend the present facilities greatly and alleviate a serious hospital shortage in Winnipeg for ex-service men.

The Department of Health and Public Welfare of Manitoba issued its first news bulletin on November 1st. During the month of October the following communicable diseases were reported: diphtheria 32; anterior poliomyelitis 20; scarlet fever 39; measles 19; smallpox 1; typhoid 11; tuberculosis 4; ophthalmia neonatorum 1.

Dr. J. W. Crane, University of Western Ontario, London, was a welcome visitor in Winnipeg from November 16th to November 19th. On November 16th he addressed the Winnipeg members of the executive of the Manitoba Medical Association at lunch, and in the evening the Winnipeg Medical Society at its regular meeting. On November 17th, he addressed the medical students. Dr. Crane is chairman of the section of Historical Medicine in the Canadian Medical Association.

Hon. Dr. E. W. Montgomery, Minister of Health and Public Welfare, returned recently from attending the annual meeting of the American Public Health Association at Chicago. On his trip he proceeded to Ohio and Tennessee and made investigation of the rural health area scheme in operation in these states for a number of years. Dr. C. B. Covington, of the Rockefeller Foundation Institute, was in Manitoba recently in connection with proposals to establish district health areas in this province.

The annual meeting of the Board of Governors of the Winnipeg General Hospital was held on November 3rd. Dr. G. F. Stephens, the Superintendent, pointed out that, with the daily average of patients for the entire year reaching 600, the ratio of occupied beds was 94.4 per cent. A ratio of 85 per cent average occupancy is considered the limit of safety for a general hospital which takes in accidents and emergency work. The question of enlarging the hospital is being considered.

The annual armistice day service at the Medical College under the auspices of the Medical Alumni Association was held on November 10th. Dr. B. J. Brandon presided and Dr. William Boyd delivered an eloquent address.

At the meeting of the Winnipeg Medical Society on October 19th, Dr. E. S. Moorhead read a paper on "Pyloric spasm," and Dr. A. J. Fraser, Medical Officer of the Workmen's Compensation Board, a paper on "Infections of the hand." At the meeting on November 16th the following program was presented: "Organization of a full time rural health unit," Hon. Dr. E. W. Montgomery; "The heart, the great vessels and the x-ray," Dr. Digby Wheeler; "Diet and disease," Dr. J. W. Crane, London, Ont.

Dr. C. A. Barager, Superintendent of the Brandon Mental Hospital has been promoted to the rank of lieutenant-colonel, and to command No. 21 Cavalry Field Ambulance, R.C.A.M.C., located at Brandon, vice Lieut.-Col. and Brevet Colonel C.P. Templeton, C.B.E., D.S.O., V.D.

Dr. C R. Gilmour has been appointed physician to, and chief of the department of medicine in, the Winnipeg General Hospital.

Dr. Lennox Arthur has been appointed Assistant in Obstetrics (Out-Patient Department) at the Winnipeg General Hospital. ROSS MITCHELL

## SASKATCHEWAN

At a recent re-organization meeting of the Eastern Saskatchewan Medical Society the following officers were elected: Honorary President, Dr. Elliott, Wolsley; President, Dr. Munroe, Welwyn; Vice-President, Dr. Chestnut, Moosomin; Secretary-Treasurer, Dr. J. A. Keyes, Fleming.

At a recent scientific meeting of the Eastern Saskatchewan Medical Society Dr. George Craig, of Broadview, gave a paper entitled "The therapeutic value of rest in the treatment of disease," and Hon. Dr. E. W. Montgomery, of Winnipeg, spoke on "Research work on pernicious anæmia as carried on by the medical staff of Manitoba University." The Moosomin Canadian Club entertained the Society members at dinner, when Dr. Montgomery again spoke, the topic of his address being "Six hundred miles of travel in northern Manitoba by canoe."

On October 20th the Eastern Saskatchewan Medical Society was visited by a post-graduate team composed of Dr. H. H. Hepburn, of Edmonton, and Dr. W. A. Merritt, of Calgary. As this date fell on Saturday the attendance was rather poor, but those present discussed the papers enthusiastically. Dr. A. McG. Young, who accompanied the team, also addressed the meeting. J. A. KEYES

Dr. Ross Miller, Chief Advisor of the Department of Pensions and National Health, Ottawa, visited Regina on October 22nd. He held a conference with the medical men of Regina who are engaged in the work of the Soldiers' Civil Reestablishment. Dr. Gordon Young, of Moose Jaw, and Dr. Cox and Dr. Creighton, of Saskatoon, also attended the conference. Dr. Miller addressed the war veterans in both Moose Jaw and Regina.

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In Virol the relative proportions of Protein, Fat, Carbohydrate and Mineral Salts are carefully adjusted. For it is recognized that the absence or deficiency of one element leads to the inefficient absorption of the other food elements present in the diet. Thus

## Virol is a food complete in itself and correctly balanced

A Food, again, must be judged by the amount and nature of the products of its digestion that ultimately reach the blood. In Virol the fat is presented in the form of a highly digestible emulsion, and the proportion of protein is adjusted so as to avoid derangement of nitrogenous metabolism.

The proof that Virol conforms to all the essential canons of the science of nutrition is seen by the fact that

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The staff of the Grey Nuns' Hospital, Regina, held their monthly meeting after a lunch on October 25th. Dr. T. A. Morrison and Dr. A. S. Gorrell each reported a case of Hodgkin's disease. Dr. U. Gareau reported a case of pyloric stenosis in a child.

The Saskatchewan Anti-Tuberculosis League has circularized the physicians of the province asking them to co-operate in the examination of the "under-par children" reported to the League. A fee of five dollars will be paid by the League for the first examination of each patient, and two dollars for each subsequent examination. Saskatchewan had a tuberculosis death rate of 46 per 100,000 population in 1927, which is the lowest rate in any of the provinces.

Dr. H. H. Hepburn, F.R.C.S., Assistant Professor of Surgery, University of Alberta, and Dr. W. A. Merritt, of Calgary, have just completed an extra-mural post-graduate tour. Meetings were held at North Battleford, Prince Albert, Wadena, Saskatoon, Broadview, Regina, Moose Jaw, Weyburn, and Swift Current. Owing to unfortunate circumstances at two points the meetings were not as large as desirable. At all other points however, the meetings were very well attended, and were highly appreciated by those present. Dr. Merritt spoke on the subjects of "Peptic ulcer," "Nephritis, acute and chronic," and "Encephalitis." Those given by Dr. Hepburn were "The treatment of head injuries," "The surgical treatment of neuritis and neuralgia," "Common lesions of the brain and spinal cord." Dr. A. MacG. Young, General Secretary-Treasurer, accompanied the visiting team on this tour and discussed matters of interest to the profession.

The births in Regina the first nine months of this year numbered 1,115; the deaths of infants under one year of age numbered 63. This death rate is below that of former years.

Physicians in the city of Regina and throughout the province are elated at the judgment given last week in a test case in Arcola District Court.

Municipalities throughout the province have long taken the stand that while they should pay hospital bills for patients, who are unable to do so, from their communities, it was not their duty to meet the bills of attending physicians. The judgment holds municipalities are also responsible for physicians' bills.

Dr. W. R. Coles sued the rural municipality of Wawken for a fee of $125 for attending Bobby Brickley, aged two years, for a period of 111 days in the Grey Nuns' Hospital. The boy's right arm had been badly injured and burned making it necessary for Dr. Coles to do some skin grafting.

The municipality paid $277.50 to the hospital, but refused to meet the doctor's bill, taking the stand that on the grounds of the Rural Municipality Act they were not compelled to make such payment to a physician.

Judge Rimmer gave judgment against the municipality.

Dr. Gordon Wells and his wife, Dr. Alice Mooney Wells, who are both graduates of the University of Toronto, have recently come from Flaxton, North Dakota, to Weyburn. They were accompanied by their two sons and two daughters.

Dr. R. E. Brown, who has been at the Regina General Hospital, has now begun to practise at Balcarres.

Dr. A. S. Simpson, of Maple Creek, has associated himself in practice with Dr. R. V. McCarley, of North Vancouver, and is now located in that city.

Dr. F. F. Dunham, who has been practising at Girvin, has moved to Rocanville.

Dr. J. L. A. Aubin, who for several years has been at Willowbunch, is now practising at Hearst, Ontario.

Dr. D. M. Baltzan, who has been on extended post-graduate work in Europe and the United States, has returned to Saskatoon.

Dr. B. Stoller, has begun practising at Regina.

Dr. A. Belkin, a recent graduate of Manitoba, has opened an office in Tomkins.

Dr. M. D. Mitchell formerly of Piapot, has moved to Maple Creek.

Dr. L. Beaudoin, who practised formerly in Regina, has moved to Pontiex.

Dr. R. S. Conn, of Regina, has moved to Francis.

Dr. E. W. Seale, of Whitewood, sold his practice to Dr. S. W. Baker. Dr. Seale has moved to Brandon, Manitoba.

Dr. F. B. Walsh, Estevan, has just returned from Edinburgh, where he was successful in obtaining his F.R.C.S.

Dr. L. M. Fairbairn is now practising with Drs. Creighton and Walsh, of Estevan.

Dr. James Brown, of Bromhead, where he practised for many years, has moved to Oungre.

Dr. I. E. Brouse, formerly of Vibank, has moved his office to Tuxford.

Dr. T. D. Kendrick has begun practising at Earl Grey.

Dr. L. Jordani, who was House Surgeon at the Regina General Hospital, has opened an office at Willowbunch.

Dr. Boris P. Batanoff is now at Blaine Lake.

Dr. A. W. Brodie, who formerly practised at Blaine Lake, has returned from taking post-graduate work in Great Britain and the Continent, and is practising in Prince Albert.

Dr. S. U. Baker, formerly of Buchanan, has taken over the practice of Dr. C. Seale, of Whitewood.

LILLIAN A. CHASE

## BRITISH COLUMBIA

### Dr. G. L. Milne Honoured

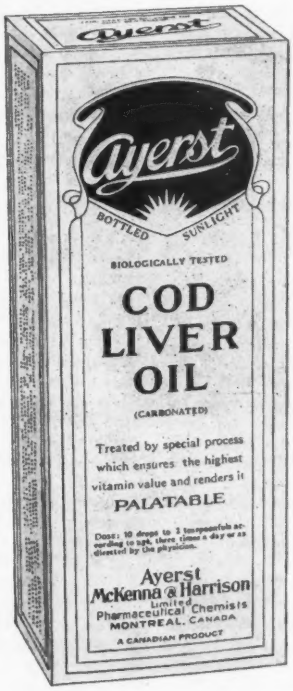
"It is but a fitting tribute to Dr. G. L. Milne of this city that he should have been made a life member of the Victoria Medical Society. It is a supplement to the honours he has already received in this direction, for he is an honorary life-member of the British Columbia Medical Association, and also enjoys a similar privilege in the larger Canadian Medical Association. Dr. Milne's work as a practitioner is widely known. He has earned the title of "Father of the Medical Association" in this province, and during his years of active practice he did very much to build up that body

# UNKNOWN FACTORS
*in*
# COD LIVER OIL

SINCE the determination of the presence of certain vitamins in Cod Liver Oil and the essential place of these vitamins in the human diet, there has been a frantic effort to isolate them and to develop laboratory products which could replace Cod Liver Oil for many of its present uses.

### *Used For Centuries*

Because of its therapeutic value Cod Liver Oil has been used for centuries, but the true cause of its value has never been fully determined. For some time we have known it to be the richest source of Vitamin A and for a shorter time we have known it to be the richest source of Vitamin D. What other values it possesses we do not know.




### *Further Research Needed*

In the excitement and enthusiasm naturally produced by these truly progressive steps in vitamin research we should not lose sight of the fact that further research into the therapeutic value of Cod Liver Oil must be conducted before these new substances can be legitimately thought of as true substitutes for Cod Liver Oil.

**AYERST COD LIVER OIL**
**Obtained from selected sources in Newfoundland**
**Biologically tested in our own laboratories**
**Guaranteed to contain 500 Vitamin A units and 75 Vitamin D per Gm. or better**
**Carbonated by a special process which preserves the vitamin content and renders it.**

**PLEASANT TO TASTE**

***A Canadian Product by***

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to the high place it now occupies in the medical life of the province. His labours in the cause of medical science well deserve the triple recognition with which he has been honoured. To him and his colleagues of the time, in 1886, is due the passage of the original Medical Act of the British Columbia Legislature, which insured that only qualified men would be permitted to practise in the province.

Dr. Milne, some years ago, retired as Inspector of Immigration and Controller of Chinese Immigration at this port, a post which he occupied with entire satisfaction to the Dominion Government and the public at large. In this task and in the many other activities in which he engaged in connection with the Medical Health service of the Dominion Government he rendered always faithful and efficient duty and enjoyed the respect of all. He has been in British Columbia for nearly half a century and the local medical society is to be congratulated on having seized upon this fact to do him an honour which he so well deserves. The hope will be expressed by his numerous friends that he will be long spared to enjoy a rest which is the reward of the conscientious endeavour he has always shown." (*The Victoria Colonist*).

Dr. J. W. Woodley, of the Pensions' Board, has recently been transferred to Calgary.

The new hospital at Nanaimo is now in operation.

C. H. BASTIN

The new Medical & Dental Building is at last on the way to becoming more than a dream. The contractors are now busy on a fifteen storey building on Georgia Street, directly across the street from the new Canadian National Railway Hotel, work on which is to begin this month. Already the British Columbia and Vancouver Medical Associations are making arrangements for joint executive offices in the new building, and the Library of the Vancouver Medical Association will be on the same floor. The building is to have an auditorium in which it is hoped all medical meetings will be held. It should be ready for occupation towards the end of the summer of 1929.

A committee of the Vancouver Medical Association has been engaged during the past few weeks on a survey of the public health situation in the city having in view the changes and rearrangements that will be necessary when the amalgamation of the Municipalities of Point Grey and South Vancouver with the City of Vancouver takes effect at the beginning of the year.

J. M. PEARSON

## UNITED STATES

### Cancer Control and the American Public Health Association

An event of much importance to cancer control in the United States took place at Chicago in the week beginning October 15th, when the American Public Health Association, with an attendance of 2,400 members, mostly professional health workers, held its fifty-seventh annual meeting.

The principal feature of the convention was a cancer symposium under the chairmanship of Dr. Charles H. Mayo, with addresses on early diagnosis, the epidemiological approach to cancer, heredity, a cancer clinic and what it is necessary to do about cancer. Dr. Mayo himself expressed a belief in the inheritability of a susceptibility to cancer, and made a plea for a central organization which should serve as a clearing house for information on cancer.

The Association adopted the report of its Cancer Committee recommending that responsibility for leading and otherwise promoting cancer control activities in a state or community be definitely placed in the hands of a committee composed of, (a) the head of the public health department, (b) a representative elected by the organized medical profession, and (c) a representative of the American Society for the Control of Cancer.

The Committee on Administrative Practice of the American Public Health Association presented a revision of the Appraisal Form for city health work in which cancer is named as an activity to be taken fully into account in rating the value of public health work, listing it with sanitation, the control of communicable disease, etc.

Announcement was made of the appointment of a National Cancer Committee with members in all parts of the United States and a local Cancer Committee in Chicago to investigate new methods in treating cancer and to serve as a centre of information on all phases of the cancer question.

A new committee on cancer statistics was appointed by the Section on Vital Statistics to draw up standard methods of collecting and expressing statistics of cancer in which the errors which have so often invalidated such records shall be as far as possible eliminated. It is possible that the work of this committee will entirely change existing statistical methods in relation to this disease.

A decision was made to devote an entire session of the Section on Statistics to cancer at the next annual meeting.

### Septic Sore Throat in Lee, Mass.

In a recent issue of the *Weekly Bulletin* of the Department of Health of the City of New York it is stated that an epidemic of septic sore throat broke out in Lee, Massachusetts, in July. Within two weeks there were nearly 600 cases, with thirty-six deaths, in a population of about 4,000. The epidemic ended abruptly on the enforcement of a local order requiring pasteurization of milk; this followed the recovery of hæmolytic streptococci from a cow and from a number of persons concerned with a dairy. Contact cases were very few.

### Nine Medical Colleges Pass the Century Mark

The following tabulation will be of interest in noting the time of service of centenarian medical schools in the United States. This year the University of Pennsylvania School of Medicine begins the one hundred and sixty-third session; Harvard University Medical School begins the one hundred and forty-sixth session; University of Maryland School of Medicine and College of Physicians and Surgeons begins the one hundred and twenty-second session; Columbia University College of Physicians and Surgeons begins the one hundred and twenty-first session; Yale University School of Medicine begins the one hundred and fourth session; Jefferson Medical College begins the one hundred and fourth session. The University of Virginia Department of Medicine, the Medical College of the State of South Carolina, and the University of Georgia Medical Department begin their one hundredth session.—*Virginia Medical Monthly.*

### Gift to the University of Chicago

At the ceremonies connected with the dedication of the chapel of the University of Chicago, Mr. John D. Rockefeller, Jr., is reported to have said: "As president of the Laura Spelman Rockefeller Memorial I am authorized to offer to the university an endowment fund (of $1,000,000) to be known as the Laura Spelman Rockefeller Memorial fund, to be used to promote the religious idealism of the students of the university, through the broadest and most liberal

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Each heaping teaspoonful contains 7 1/2 grains of Urosine (Hexamine) in combination with Benzoic Acid.

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*A Most Effective Urinary Antiseptic*

The associated benzoic acid makes unnecessary the separate administration of an acid salt.

*Dispensed in original bottles holding four ounces*

DOSE — One to two teaspoonfuls in a large glass of water three times daily.

Urosine is worthy of your investigation and specification.

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development of the spiritual forces centering and radiating from this chapel.''—*Science*, Nov. 2, 1928.

### Biggs Professorship in Preventive Medicine

The Herman M. Biggs Memorial Fund gave more than $55,000 recently to New York University and Bellevue Medical College to establish a professorship in preventive medicine in Dr. Biggs' name.

### Alvarenga Prize of the College of Physicians and Surgeons

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about three hundred dollars, will be made on July 14, 1929, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

An essay intended for competition may be upon any subject in medicine, but must be accompanied by a written assurance from the author that it has not appeared previously in print, either in whole or in part, in any form, and has not been presented elsewhere in competition for a prize. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. It must be typewritten, and in English acceptable for publication without necessity for editing by the Committee. Any illustrations should be appropriate and correctly annotated with the text. Essays must be received by the Secretary of the College on or before May 1, 1929.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; and that it may be published by the author with the consent of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1928 has been awarded to Drs. J. A. Paul and W. W. McClenahan, Philadelphia, for their essay entitled: ''A pathological study of the pleural and pulmonary lesions in rheumatic fever.''

JOHN H. GIRVIN, *Secretary*,
19 South 22d Street, Philadelphia, Pa.

## GENERAL

### The League of Nations on Syphilis

The Health Organization of the League of Nations has published the deliberations of a group of experts* on syphilis and cognate subjects held under its aegis at Geneva in October last. The matters discussed were chiefly: (1) the prevention of syphilis; and (2) the teaching of modern methods of treatment, together with the standardization of drugs used.

It was pointed out that in the fight against syphilis the results have not been what the progress of syphilis therapy would give reason to suspect. This seems to be because the new discoveries are not exploited to their fullest extent, and no uniform generally recognized method of treatment exists.

It is suggested by the Committee, therefore, that a statistical compilation should be made regarding the various methods of treatment in clinics, dispensaries, etc., to permit of a better general idea of their efficacy. This compilation would be made by the various clinics sending to the Health Section of the League individual case records which could be worked up and the conclusions tabulated. This would require the reporting of a large number of cases, and also the working up of these cases over a given period of time. The Directors of Clinics would be asked also to prepare a general statement of the principles they applied in their treatment.

The importance of theoretical and practical training for students in syphilology was emphasized. In the view of the Committee, the state should facilitate in every way continuation courses in syphilology for general practitioners and medical officers.

As regards the drugs used in treatment of syphilis, the Committee was of the opinion that it is highly regrettable that bismuth preparations should be placed on the market which do not correspond to the manufacturers' indications. Certain countries have adopted the plan of officially testing these preparations, and this method should be made widely known, perhaps through the Health Organization of the League itself.

* These were of Professor Jadassohn of Breslau (chairman), Dr. Th. Madsen of Copenhagen, Colonel L. W. Harrison of London, Dr. Louis Queyrat of Paris, Dr. J. H. Stokes of Philadelphia, and Prof. C. Rasch of Copenhagen.

### The Pan-American Medical Association

The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from December 29, 1928, to January 3, 1929. The program which is being arranged by the President, Dr. Fred. H. Albee, of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pædiatrics, and tropical medicine.

Dr. William J. Mayo will give the Oration on Surgery, and Dr. Lewellys Barker, of Johns Hopkins University, the Oration on Medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire western hemisphere. Chapters of the Association have been and are being organized in various centres of North and Central America, as well as in the Antilles, all of which will be represented at the congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking peoples.

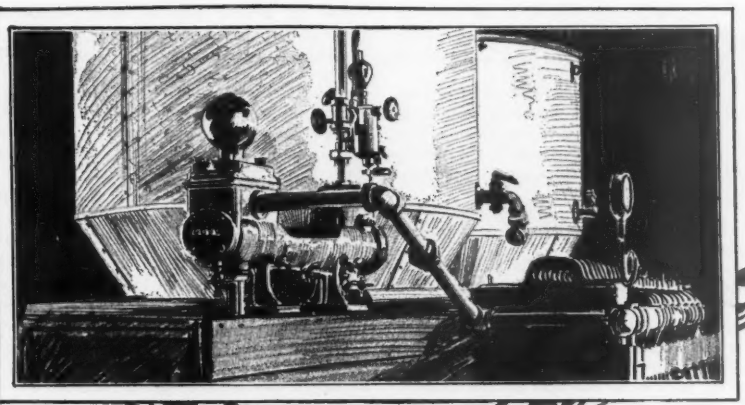
The Secretary is Dr. Conrad Berens, 30 E. 40th St., New York City.

### Rockefeller Fellowships in Dublin University

Within the last few months the trustees of the Rockefeller Foundation have given their assent to a scheme for the establishment of research and teaching fellowships in connection with the medical school of Dublin University, and three fellowships, each worth £500 a year, have been provided. One came into being on October 1st; another will be created in October, 1929; and a third, two years later. The fellowships are residential, and each holder will be required to work in a department of Trinity College Medical School, mainly on research, but with some teaching as part of his duties. The present scheme is tentative in character, and will be subject to review after five years. Under the scheme Dr. R. A. Q. O'Meara, M.Sc., has been nominated as Rockefeller Foundation Fellow in Public Health, his appointment dating from October 1st.

### The Nobel Prize

The Nobel Prize for Medicine for 1928 has been awarded to Professor Charles Nicolle, Director of the Pasteur Institute in Tunis, for his work in connection



*Steam Rendering Vats*

# Steam Rendering of Cod Livers

## Vs Rotting

Much of the unpleasantness in the taste of cod liver oil was eliminated when steam was introduced to remove the oil from fresh livers. The old method, when the industry was in its infancy, was to allow the livers to rot in open barrels in the sun. Putrefaction and nature were relied upon under the old order. Science and progress mark the new.

This added to the fact that only about an hour's time elapses from the time the fish are caught until the livers are in the rendering vats, accounts in large measure for the superiority of Mead's Standardized Cod Liver Oil.

But before rendering, each liver is examined and thoroughly washed. Bile infected and small livers are thrown out. These are all preparatory precautions.

And now Mead's Cod Liver Oil can be had with the addition of agreeable essential oils —permanently flavored—with no diminishing of potency or injury to the patient.

## Mead Johnson & Co. of Canada, Ltd.

*Belleville, Ontario*

*Above Center: Rotting Livers Old Method*

*At Left: Washing Livers Before Rendering*

*Samples and Literature on Request*

with typhus fever, particularly in regard to the rôle of lice in transmitting the disease.

### Post-Graduate Work in Berlin

International medical post-graduate courses in Berlin are arranged with the help of the medical faculty of the university by the Lecturers' Association for Medical Continuation Courses and the Kaiserin Friedrich-Haus. Part of the courses run continuously; part only in March and April, 1929.

I. PERMANENT COURSES

(a) Courses for 2 to 4 weeks.

(b) Courses as guest-assistants in clinics, hospitals and laboratories during 2 to 3 months and longer for gentlemen desiring to do practical work under systematic supervision.

II. COURSES IN MARCH AND APRIL, 1929

(a) General course: "Progress in the realm of medicine, with special regard to diseases of the heart" (from 4th to 16th March), with the co-operation of the following gentlemen: v. Bergmann, Dresel, F. Klemperer, Munk, Rosin, V. Schilling, Schlayer, Straus. Fee, RM 80.

(b) Special course in urology (from 18th to 23rd March), with the co-operation of the following; Bätzner, Casper, E. Joseph, v. Lichtenberg, Ringleb, Rumpel. Fee, RM 75.

(c) Special course in surgery on the theme: "A week on breast and stomach surgery" (from 18th March to 13th April), with the co-operation of the following: Bätzner, Bier, Borchardt, Katzenstein, Kisch, Mühsam, Sauerbruch, Unger. Fee, RM 75.

(d) Special course in roentgenology, taking into particular consideration its application to surgery (from 14th to 21st April), with the co-operation of the following: Chaoul, Max Cohn, Cramer, Frik, Hintze, Lazarus, Levy-Dorn, Munk, Rumpel. Fee RM 100.

(e) Single courses on all the special fields of medical science, including practical work.

The courses are held in German, but numerous professors are able to lecture in the English, French and Spanish languages.

The information bureau of the Kaiserin Friedrich-Haus für das ärztliche Fortbildungswesen, Berlin, NW. 6, Luisenplatz 2-4, is available for procuring suitable lodgings, gives information as to the cost of stay, arranges the attendance in clinics at operations, etc., and, upon request, sends detailed syllabuses.

### Medical Education in Germany

Beginning with June 15, 1928, the premedical course in Germany will comprise five instead of four semesters. This means that the complete medical course will consist of eleven instead of ten semesters. After a course of study pursued for this length of time the medical examination must be undergone.

## Book Reviews

**The Care of the Child: A Guide for Perplexed Mothers.** Alton Goldbloom, B.A., M.D. Price $1.50. Longmans, Green and Co., Toronto, London and New York, 1928.

This is a small volume of 240 pages, well printed and illustrated. In the preface we are told that it was written after noting for a period of ten years the type of information demanded by young mothers regarding the care, feeding and development of their young children. Dr. Goldbloom, as one of the lecturers on pædiatrics in McGill University and physician to many of the children's hospitals in the city of Montreal, is well fitted to give advice. His instructions are clear and are eminently practical and reliable. We have read this small volume through with much interest and can strongly recommend it to physicians as one in every way suitable to place in the hands of young mothers and nurses who desire general advice on the management of growing children.

A. D. B.

**Gynecology.** William P. Graves, A.B., M.D., F.A.C.S. Fourth edition. 1016 pages, illustrated. Price $10.50. London and Philadelphia, W. B. Saunders Co.; Canadian Agents, McAinsh & Co., Toronto, 1928.

In this fourth edition the author has maintained the high standard of previous volumes. Not only has this edition been brought up to date, but in doing so Dr. Graves has given us a stimulating volume, easily read, full of interest and valuable conclusions. From the maze of recent experiments and investigations he selects what appear to be the essentials.

The physiology of the uterus, ovaries and other organs of generation, with their functional tissue changes, are thoroughly discussed and well illustrated. Under the heading "The Relationship of Gynecology to the General Organism," the author has availed himself of the great opportunity of emphasizing worthwhile theories and facts and at the same time minimizing or discarding confusing or doubtful ones. The origin and action of ovarian secretion are fully discussed. The action of the hypophysis and thyroid in so far as they affect the female generative organs is summarized. These chapters should go far in explaining the many disappointing results in the organotherapy of the past.

In the consideration of new growths there is much of interest. Carcinoma of the uterus, its grades of malignancy, and the place of radium and surgery in its treatment, are set forth by the author in conclusions arrived at through statistics from his own and other large clinics. Endometrosis receives the ever increasing recognition that present day pathology and clinical experience demand. The author's new classification of ovarian tumours, though admittedly not perfect, seems to simplify previous ones, and should aid the gynæcologist in dealing with new growths of the ovary. His brief résumé of the involution of the ovary from the primitive fold in the peritoneum is typical of the author's efforts in this book.

A short chapter considers injuries due to childbirth. Dysmenorrhœa and sterility both receive due consideration. Almost one-third of the volume is devoted to well illustrated operative gynæcology. The needed illustrations of Sturmdorf's cervical operation and of cauterization of the cervix are present. The inclusion of Ward's method of dealing with cystocele improves the volume. Although long practised in many clinics, the much needed emphasis has been given to retaining as much of the uterus as possible in the treatment of procidentia. The fact that the author has now discarded the use of silk where previously he strongly advocated heavy silk in doing the Olshausen operation is of more than passing interest.

The bibliography, for the most part at the end of the text, will form an adequate basis from which extended reading of recent advances in gynæcology may be made. Though a large volume, as a text-book or as a reference, this fourth edition is a most valuable contribution to students and the profession in the study and practice of gynæcology.

J. D. MCQUEEN

**Blood, A Study in General Physiology.** Prof. Lawrence J. Henderson. 397 pages, maps. Price $5.00. Yale University Press, New Haven, Conn., 1928.

In this book the blood is regarded as a physiochemical system consisting of two phases, the plasma

*Note for the Medical Profession*

# *Sepsis*

UNTIL recently, no antiseptic has been available for the treatment of sepsis which not only possesses adequate germicidal power, but can be applied in effective dilutions without damage to tissues.

Monsol has a germicidal action on the Streptococcus Pyogenes more than ten times greater than that of pure phenol or lysol, and can be applied in dilutions stronger than those found capable of killing this organism, even to mucous membranes.

The following are some of the conditions in which this property can be utilised:

*Throat Infections*
As a gargle in streptococcal tonsillitis: for the treatment of streptococcus carriers in scarlet fever outbreaks.

*Skin Conditions*
As an ointment or lotion in impetigo and other forms of dermatitis; for boils and carbuncles.

*Wounds and Abrasions*
As an immediate prophylactic application, or as a dressing for injuries already septic.

*Obstetrical Practice*
As a vaginal or intra-uterine douche.

*Dental Sepsis*
As a mouth-wash after extractions.

Many hundreds of letters have been received from medical men testifying to the value of Monsol in the treatment of septic conditions.

*Monsol*
Liquid for dressings, douches, packs, and all sick-room purposes

*Monsol Ointment*

MONSOL BRAND

*Monsol Capsules*
Keratin-coated for intestinal disinfection

*Monsol Throat Pastilles*

GERMICIDE AND DISINFECTANT

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and the red corpuscles. The principal components of the two phases are stated to be water, carbon dioxide, oxygen, hydrochloric acid, together with all other acids except proteins which are combined with base. The sum of all the bases (except protein) of the plasma, the sum of all the bases (except protein) of the cells, the sum of the proteins of plasma, the protein of the cells; these are the variables with which the book deals.

Three physiological functions of blood are considered: that of environment of the organs and tissues; those of vehicle for the transport of oxygen and carbonic acid between lungs and tissues and for transport of water and glucose; and that of regulation of temperature. The properties of the components of the blood are shown to be highly adapted to the function of preserving the constancy of the environment of cells and tissues and to the function of transporting carbonic acid and oxygen.

The book sets out the results of the author's own work and its scope is indicated by an enumeration of the headings under which the material is presented. These are, following the introductory chapters, acid-base equilibrium, dissociation curves, cells and plasma, the physico-chemical system, the respiratory cycle, blood and circulation. Then follow chapters in which are considered variations in the composition of the blood during work, in disease, and of other species. A chapter entitled "Circulatory Adaptations" has to do with studies of the physiological changes in four men while riding a stationary bicycle.

In summing up, we find, to use to some extent the author's own words, that the respiratory activity of the blood has been related to certain aspects of general physiology, a quantitative study of the physico-chemical system blood has been made, the respiratory cycle of the blood has been analyzed, the relations between the properties of the blood and its cycle and between the properties of the blood and those of the circulation and respiration, have been stated. Further, there is a comparative quantitative description of the blood in rest and work, in health and disease, and from species to species, with a corresponding description of the respiratory cycle of blood; and, finally, a description of the mutual dependence of the properties of blood and of the circulation, respiration and metabolism. The style in which it is written and the order of presentation make the book readable and understandable. The treatment is mathematical throughout and the text is supplemented and illustrated by a profusion of charts and diagrams. The use of equations, contour line charts, and nomograms makes it possible to present many facts and relations in a clear and concise manner. To the physiologist who is mathematically inclined the book should be a delight. The mathematical treatment of a biological subject has its defects as well as its advantages, but in this case one is conscious only of the advantages.

A. W. DOWNS

**Modern Problems in Neurology.** Kinnier Wilson, M.D., B.Sc. (Edin.), F.R.C.P. 364 pages, illustrated. Price 21/- net. Edward Arnold and Co., London, 1928.

The author has collected in this volume a series of his own papers which have appeared in journals in recent years, all dealing with subjects that have been prominent lately. The papers have been revised for this volume and new material has been incorporated in most instances.

In the first four chapters, Wilson considers the epilepsies, their variants and related phenomena, and gives simple and clear descriptions illustrated by cases. These studies will offer to many readers a new outlook and render interesting those conditions usually grouped together and described as the "disease" epilepsy, although some will find it difficult to acknowledge many of the conditions mentioned as being epileptic.

The Croonian Lectures of 1925 are presented as a series of five chapters headed "Disorders of Motility and Muscle Tone with special Reference to the *Corpus striatum.*" The author attempts to delimit the functions of the *corpus striatum* by a consideration of case material, experimental work and clinico-pathological evidence. The careful consideration of the facts, leading to definite statements of opinion, makes this section easy to read and should clear the minds of many on topics that have tended to become complex and confusing.

Other chapters are on the narcolepsies, pathological laughing and crying, the old motor system and the new, dysæsthesiæ and their neural correlates, with a final study on the Argyll-Robertson pupil.

The volume leaves one with the feeling that the facts have been considered in a careful and authoritative fashion, and is the more satisfying in so far as it is easy and pleasing to read. The writer is particularly interesting in his references to subjective sensations and phenomena, and in the literary quotations with which they are illustrated.

The name of the writer is sufficient commendation to neurologists, who will prize this collected series of papers, but the content and style are such as to render the volume of value and interest to the general physician who wishes a clear statement of modern ideas on the above -mentioned subjects.

DAVID SLIGHT

**Clinical Electrocardiography.** Sir Thomas Lewis, M.D., F.R.S., D.Sc., F.R.C.P., C.B.E. Fourth edition. 128 pages, illustrated. Price 8s. 6d. Shaw & Sons, Ltd., London, E.C.4.

This monograph like all the works of Sir Thomas Lewis is a model of concise and clear description. No words are wasted and the subject is clearly stated. The only important addition to previous editions is the section on coronary thrombosis, the latest clinical entity to be added to the list of recognizable heart defects. It is pointed out that electrocardiographic methods furnish diagnostic data of great value. Apart from this, few changes are noted. Here and there a few words are added or omitted in order to give improved elegance of expression to what is already clear.

In these days when electrocardiographic language colours all literature on heart disease the general practitioner is frequently bewildered by the many technical terms. He will find in this monograph exactly what he needs to aid him in interpreting the evidence of heart disease in so far as this special method is concerned.

K. A. MACKENZIE

**Practical Surgery of the Abdomen.** George H. Juilly, M.D. Foreword by W. Wayne Babcock, M.D. 1275 pages, 1291 illustrations. Vol. I and II. Price $17.75 net. F. A. Davis Co., Philadelphia, 1928.

The first thought one has after reading these volumes is the ease and rapidity with which the whole text may be covered. There are two reasons at least; first, the number and excellence of the illustrative drawings throughout the whole work, and second, the simple and lucid English employed. The work is not couched in the language of the professor who often, quite unconsciously, assumes the conventions of the Chair. Rather is it that of the pleasing conversationalist who, with a good conceit of his knowledge, tells how he is doing certain things and how others should be done. There is nothing strained, and a total absence of inhibition marks the literary style of the book.

Were this work confined to an actual description of operations alone it would be almost possible to read it through without the printed text, so rich is it in illustration of every operative step. But it is much more than a work on the mechanics of operations. The preoperative and post-operative treatment of the patient

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The author's well reasoned conservatism on the subject of pylorectomy will appeal favourably to medical internists and to many surgeons. He rests his case, here as elsewhere, on sound physiological principles, and adds the evidence of much clinical experience to his contention.

If one has to learn operative surgery from a book I know nothing better than this. As an example of the practical simplicity of detail one might mention the chapter on operations on the anterior abdominal wall. It is difficult to call up any abnormality of the different herniæ described which is not accounted for, and a proper modification in operative technique is detailed to meet the irregularity. Dr. Juilly's bright volumes like certain luminous bodies, doubtless have their dark specks, but one reading does not reveal them. There is safety in his operative guidance, wisdom in his advice, and simplicity in all. It is, therefore, a good teaching book; excellent for students and a great practical aid to the surgeon. GEORGE H. MURPHY

**Text-book of Pharmacology and Therapeutics or the Action of Drugs in Health and Disease.** Arthur R. Cushny, M.A., M.D., LL.D., F.R.S. Ninth edition revised by C. W. Edmunds, A.B., M.D., and J. A. Gunn, M.A., M.D., D.Sc. 743 pages, 73 illustrations. Price $6.00 net. Lea & Febiger, Philadelphia, 1928.

The revision of this excellent text-book has been most conscientiously carried out by the joint revisers. The critical and literary flavour imparted to the book by Cushny has not been spoiled and the additions have served not only to bring it up to date as a readable text-book of pharmacology, but also to bring it into harmony with the tenth revision of the U.S. Pharmacopœia. It can be strongly recommended to all members of the medical profession who wish to gain a modern knowledge of pharmacology and useful direction in the therapeutic application of such drugs as may be employed with advantage in medicine. It will furnish also the practitioner with a needed knowledge of the dangers of his materia medica and of toxicology. The book is excellently printed and bound and is a credit both to the publisher and to the authors. V. E. HENDERSON

**An Introduction to Experimental Pharmacology. Torald** Sollmann, M.D., and Paul J. Hanzlik, M.D. 521 pages, illustrated. Price $4.25. London and Philadelphia, W. B. Saunders Co.; Canadian Agents, McAinsh & Co., Toronto, 1928.

This book is an adaptation of Sollmann's well known Laboratory Guide in Pharmacology. It contains many excellent features which make it a standard book of reference for laboratory workers in physiology and pharmacology and indeed all those who experiment on the living animal. Any young teacher of pharmacology would find in it an excellent source of well thought-out experiments for use in his classes. V. E. HENDERSON

**Laboratory Manual of Physiological Chemistry.** D. Wright Wilson, Benjamin Rush Professor of Physiological Chemistry, University of Pennsylvania. 272 pages. Price $3.50. Williams & Wilkins Co., Baltimore, 1928.

The practical work in biochemistry done by students at the University of Pennsylvania is outlined in this book. A few experiments, well chosen, are inserted at the beginning, to refresh the student's mind on the inorganic constituents of biological materials, with particular reference to the principles of their quantitative estimation. The relationship of indicators to hydrogen-ion concentration is next treated, and this is followed by a few experiments on the physical properties of colloids.

Part I treats of the carbohydrates qualitatively, with experiments on characteristic reactions only. Proteins are considered somewhat briefly, using albumin and globulin mainly as examples. Their properties are considered as one class and little emphasis is placed on separate groups. There are special detailed instructions for the preparation of cystine and tyrosine. The section on the chemistry of fats is particularly well chosen. It includes the best qualitative tests and quantitative determinations of iodine and saponification values.

Part II treats of the body tissues and fluids. The usual experiments on salivary, gastric and pancreatic digestions are given. Milk is examined qualitatively only. A few experiments are described with bone, muscle, yeast and bile. Blood is examined thoroughly, both qualitatively and quantitatively. Urine is treated likewise. There is a short section on the pathological constituents of urine. The volume ends with a few dietary deficiency experiments in outline.

The book is interleaved with blank pages. It represents a thorough course in biochemistry which has been well tried in the laboratory. It further lays emphasis on the essentials, which are not hidden in a mass of experimentation as so frequently occurs.

E. GORDON YOUNG

**The Determination of Hydrogen Ions.** William Mansfield Clark, M.A., Ph.D. Third edition. 717 pages with charts. Price $6.50. Williams & Wilkins Co., Baltimore, 1928.

For those familiar with previous editions of this book the fact that a completely rewritten issue is at hand is all the review necessary.

For readers of a journal such as this, for whom, except those engaged in laboratory work, a general knowledge of its subject matter only is needed, the book may look so formidable on first glance as to inspire no further interest. It may be said, however, that there is so much in this volume we all should understand, in view of its importance to medicine, so much that it is possible to understand and enjoy without knowing higher mathematics, that it may be hoped that all our libraries at least will have a copy available.

Although of a more purely technical nature and of an entirely different type this book gives one the same interest that Bayliss', "General Physiology" does. The first few chapters may be read and understood without difficulty, and reading them with their very clear explanations of the foundations on which the work is built, of its theory, terms and methods, should permit a clear grasp of what may at first seem so very abstruse. Then, after having read the introduction to chapter V, who is there who would not wish to read to the end?

The more technical and practical parts are written fully and clearly. After the subject has been carefully led up to, the colorimetric method is defined and explained. The comparative values of the hydrogen and hydroquinone potentiometer and the sources of error are so plainly pointed out that, according to the work to be done, a correct choice of method and instrument should be easily made.

The concluding chapters deal with theory and practical applications with a very full bibliography. The impossibility of giving a complete bibliography seems to be a worry to the author, but that would be a task beyond any one man. Enough is given to enable any one to find what he wants. C. S. MCKEE

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